GEOTECHNICAL INVESTIGATION
VETERANS MEMORIAL SENIOR CENTER AND YMCA COMPLEX PROJECT
1455 MADISON AVENUE
REDWOOD CITY, CALIFORNIA

for

City of Redwood City
Attn: Christopher Beth, Director
Parks, Recreation and Community Services
1400 Roosevelt Avenue
Redwood City, California 94061

by

Cleary Consultants, Inc.
560 Division Street
Campbell, California 95008

August 2018

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August 22, 2018
Project No. 1398.1
Ser. 6012

City of Redwood City
Attn: Christopher Beth, Director
Parks, Recreation and Community Services
1400 Roosevelt Avenue
Redwood City, California 94061

RE: GEOTECHNICAL INVESTIGATION
NEW VETERANS MEMORIAL SENIOR CENTER AND YMCA COMPLEX PROJECT
1455 MADISON AVENUE
REDWOOD CITY, CALIFORNIA

Dear Mr. Beth:

As requested, we have performed a geotechnical and geologic hazards investigation for the planned Veterans Memorial Senior Center and YMCA Complex project at 1455 Madison Avenue in Redwood City, California. The accompanying report presents the results of our field investigation, laboratory testing and engineering analyses. The site and subsurface conditions are discussed and recommendations for the soil and foundation engineering aspects of the project design and an evaluation of potential seismic and geologic hazards are presented. The recommendations presented in this report are contingent upon our review of the grading and foundation plans for the proposed new construction and observation/testing of the earthwork and foundation installation phases of the project.

We refer you to the text of the report for detailed recommendations. If you have any questions concerning our findings, please call.

Yours very truly,

CLEARY CONSULTANTS, INC.

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Staff Engineering Geologist

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INTRODUCTION

This report presents the results of our geotechnical investigation for the planned Veterans Memorial Senior Center and YMCA Complex project at 1455 Madison Avenue in Redwood City, California (see Drawing 1, Site Vicinity Map for approximate location). The purpose of this investigation was to explore the soil and foundation conditions in the general location of the planned new buildings and other site improvements, and to develop recommendations for the geotechnical engineering aspects of the project design. We have also performed a geologic and seismic hazards assessment for the project as part of the geotechnical investigation.

As indicated on the information shown on Drawing 5, Site Plan, as provided by ELS Architecture and Urban Design, July 20, 2018, the project will include the construction of a new two-story Veterans Memorial Senior Center building, including a theater with a depressed slab, and a two-story YMCA building, including an indoor swimming pool and an outdoor swimming pool. The Veterans Memorial Senior Center and YMCA buildings are planned to be supported on spread footings with slab-on-grade floors. We understand that the project will also include trellis structures to be supported by drilled pier foundations. Structural loads are expected to be typical of this type of construction. We understand that the swimming pools are to be up to seven-foot three-inches in depth.

We understand that the project will also include the installation of exterior concrete slabs-on-grade, pedestrian and vehicular asphalt pavements and associated underground utilities.

SCOPE

As outlined in our proposal agreement dated March 2, 2018, the scope of our services for this investigation has included:

A. Geotechnical Investigation

1. A review of relevant published and unpublished geologic literature, maps and geotechnical information for the area.

2. Several site reconnaissances by our staff.

3. A subsurface investigation including the drilling and sampling of ten (10) exploratory borings at the project site.

4. Laboratory testing of samples obtained from the borings.

5. Engineering analysis of the field and laboratory data.

6. Preparation of this geotechnical investigation and geologic and seismic hazards assessment report for use in the project design and construction. The report includes findings and recommendations for the following:

    a. Geologic and seismic setting of the site and surrounding area, including research and review of available geologic/seismic reports and maps.

    b. 2016 CBC seismic design criteria.

    c. Site preparation and grading, including chemical soil stabilization.

d. Building foundation design parameters, including allowable bearing pressures and minimum foundation dimensions.

e. Trellis structure foundation design criteria, including allowable soil skin friction and lateral earth pressure values, and minimum dimensions for drilled piers.

f. Lateral earth pressures for swimming pool shell design.

g. Estimated foundation settlements.

h. Support of interior and exterior concrete slabs-on-grade (including subgrade/pad preparation).

i. Asphaltic concrete and aggregate base sections for new pedestrian and vehicular pavements.

j. Treatment of expansive soils.

k. Backfilling and compaction of utility trenches.

l. Percolation test results.

m. Any other unusual design or construction conditions encountered in the investigation.

B. Geologic and Seismic Hazards Assessment

The Geologic and Seismic Hazards Assessment portion of our report for the project includes the following:

1. Discussion of geologic and seismic conditions containing data on an assessment of the nature of the site and potential earthquake damage including:

    a. Regional geology and seismic conditions and historical information on the seismicity of the local and regional area.

    b. Location of known active and potentially active faults near the site, as well as nearby inactive faults.

2. Maximum considered earthquake ground motion for the site in accordance with the California Building Code, 2016 Edition, requirements

3. Potential site impacts related to faulting, soil liquefaction, lateral spreading, soil lurching, ground cracking, seismic settlement, differential compaction, landsliding, flooding and dam failure inundation with recommended mitigation measures, where appropriate.

This report has been prepared for the specific use of the City of Redwood City and its consultants in accordance with generally accepted geotechnical engineering principles and practices. No other warranty, either expressed or implied, is made. In the event that any substantial changes in the nature or design of the project are planned, the conclusions and recommendations of this report shall not be considered valid unless such changes are reviewed and the conclusions of this report modified or verified in writing. Any use or reliance of this report or the information herein by a third party shall be at such party's sole risk.

It should also be recognized that changes in the site conditions may occur with the passage of time due to environmental processes and/or acts of man, and that changes in building codes, the state of the practice or new information may require modifications in the recommendations presented herein. Accordingly, neither the client, nor any other party should rely on the information or conclusions contained in this report after three years from its date of issuance without the express written consent of Cleary Consultants, Inc.

METHOD OF INVESTIGATION

The subsurface investigation was performed on June 5, 6 and 7, 2018, under the guidance of our Staff Engineering Geologist, Mr. Chris McMahon, using truck-mounted hollow stem auger drilling equipment. A total of ten borings and two percolation tests wells were excavated to maximum depths of 49.5 and five feet, respectively, at the locations shown on Drawing 5, Site Plan. Due to the presence of underground and overhead utilities, EB-9 was hand augured to a depth of five feet and bulk samples obtained at representative depths.

A key describing the soil classification system and soil consistency terms used in this report is presented on Drawing 6 and the soil sampling procedures are described in Drawing 7. The boring logs are presented on Drawings 10 through 26.

The borings were located in the field by means of surveyor's wheel measurements and interpolation of the features shown on the overhead imagery and plans provided us. These locations should be considered accurate only to the degree implied by the methods used.

Samples of the soil materials from the borings were returned to our laboratory for classification and testing. The results of moisture content, dry density, percent finer than No. 4 and No. 200 sieves, plasticity index and free swell testing are shown on the boring logs. The laboratory test procedures followed during this investigation are summarized on Drawings 8 and 9. Drawings

27 through 29 summarize the results of the plasticity index testing. Drawings 32 and 33 present the results of R-Value testing on untreated and chemically-treated composite samples of the surficial soils, respectively. Drawing 34 presents the results of corrosion testing on a composite sample of the surficial soils collected from the borings.

A list of references consulted during the investigation is included at the end of the text.

SITE CONDITIONS

A. Surface

The project site for the new Veterans Memorial Senior Center and YMCA Complex occupies the northwestern portion of Red Morton Community Park in the area of the existing Veterans Memorial Senior Center complex, which will be demolished. The existing complex includes three one-story buildings, a two-story building and a swimming pool which is up to approximately 12 feet in depth. The south wing of the southwesterly one-story building is a theater with a depressed slab up to approximately three feet in depth. We understand that the existing buildings are supported by spread footings with concrete slab-on-grade floors.

The site is bordered on the northwest and southeast by residences and to the north, northeast, east and southeast by an irrigated grass softball field, synthetic turf playfields, a skate park, and irrigated grass playfields, respectively. The underground Hetch Hetchy Aqueduct is located immediately north of the project site.

In addition to the existing buildings and pool, there are asphalt-paved driveways and parking lots, concrete flatwork and landscaping with natural grass and small to large trees on the site. A large shade structure supported on wood poles is located on the northeast side of the swimming pool

deck. A significant number of large redwood trees are located at various locations around the existing buildings and lawns on the site.

The current buildings, AC pavements and flatwork were observed to be in generally poor to fair condition; apparent soil heave has resulted in repairs to cracked exterior slabs (grinding to match the elevation of adjacent slabs) and distressed asphalt pavements have been patched in drive aisles.

The overall regional gradient in the site vicinity is approximately one-half of a percent to the northeast. The elevation of the project site is approximately 40 feet above Mean Sea Level.

B. Subsurface

The borings generally encountered stiff to hard sandy clay and silty clay to depths of 12 to 27 feet. These layers were generally interlayered with and/or underlain by medium dense to dense coarse-grained sandy soils (clayey gravelly sand, gravelly clayey sand, gravelly sand, clayey sand and silty sand) at depths of 9.5 to 12 feet to 14.25 to 22 feet. Additionally, EB-10 encountered dense clayey sand and gravelly sand from 22 to 32 feet. Bedrock of the Franciscan Complex, as discussed below, was generally encountered in the lower portion of the borings.

Franciscan Complex bedrock was encountered in EB-2 - EB-6, EB-8 and EB-10 underlying the soils discussed above from depths of 17 to 32 feet to the maximum depth explored of 49.5 feet. The soil-bedrock contact generally deepened to the northeast, with the shallowest bedrock encountered at a depth of 17 feet in EB-3, and the deepest at a depth of 32 feet in EB-10 located approximately 670 feet to the northeast. The bedrock consisted of dense to very dense/hard intact greenstone, dense to very dense intact clayey sandstone, hard weathered clayey siltstone, dense weathered sandstone and very stiff to hard weathered sandy claystone.

EB-3, EB-9 and EB-10 encountered a one to two-foot thick surficial layer of medium dense gravelly clayey sand and clayey sand fill.

The upper sandy clay and silty clay soils, which extended to depths of 9.5 to 12 feet in the vicinity of the planned new pools, are considered to have a high to critically high expansion potential based on their plasticity characteristics (plasticity indices of 22 to 46 percent) and the free swell test data (free swells of 70 to 140 percent). The results of the plasticity index testing are presented on Drawings 27 through 29.

The attached boring logs and related information depict subsurface conditions only at the specific locations shown on Drawing 5 and on the particular dates designated on the logs. Soil conditions at other locations may differ from conditions occurring at these boring locations. Also, the passage of time may result in a change of subsurface conditions at these locations due to environmental changes.

C. Groundwater

Free groundwater was encountered in EB-2 through EB-8 and EB-10 during drilling at depths of 9.5 to 12.5 feet below the ground surface. Groundwater was not encountered in EB-1 or EB-9, which were drilled to depths of seven and five feet, respectively.

It should be noted that the borings were only open for a period of several hours and this may not have been sufficiently long enough to establish the stabilized water table conditions. It should also be noted that fluctuations of localized perched groundwater and the regional groundwater level can occur due to such factors as variations in rainfall, temperature, runoff, irrigation, groundwater withdrawal and/or recharge and other factors not evident at the time our measurements were made and reported herein.

Mapping of the depth to historically high groundwater table by the California Geological Survey (2006) indicates that the project site straddles the contour in which the depth to first groundwater is ten feet below the ground surface.

The California State Water Resources Control Board GeoTracker website, which performs a search for groundwater well records based on the site address and search radius input, did not provide relevant groundwater data in the vicinity of the project site.

Based on our review of the above information, we have conservatively assumed a historically high groundwater depth of nine feet below the ground surface for our liquefaction analyses.

GEOLOGY AND SEISMICITY

The site is located within the central region of the Coast Ranges Geomorphic Province, which extends from the Oregon border south to the Transverse Ranges. The general topography is characterized by subparallel, northwest trending mountain ranges and intervening valleys. The region has undergone a complex geologic history of sedimentation, volcanic activity, folding, faulting, uplift and erosion. The Santa Cruz Mountains are located to the west of the site, which lies near the base of the lowest foothills of the mountain range on the relatively flat-lying, alluviated San Francisco Bay Plain. The San Andreas rift zone, a major northwest trending fault system separating the Pacific and North American crustal plates, is located to the southwest of the property.

Published regional geologic mapping by Brabb, Graymer and Jones (2000), Pampeyan (1993) and Brabb (1993) indicates that the site is underlain by Pleistocene-age alluvial fan and stream channel deposits (Qpaf of Brabb, Graymer and Jones, 2000; Qoa of Pampeyan, 1993; and Qof of Brabb, 1993) and further underlain by greenstone and sandstone of the Franciscan Complex (fg and fs, respectively), which is indicated to be present at the surface approximately 100 feet south

of the project site. Drawing 2, Local Geologic Map, presents geologic conditions in the site vicinity, as depicted by Pampeyan (1993).

Our exploratory borings for this project encountered subsurface conditions generally consistent with those discussed above. However, the mapped outcropping of Franciscan Complex bedrock within Red Morton Community Park is presently a low knoll covered by irrigated grass landscaping, masking the confirmation of this feature.

The San Francisco Bay Area is recognized by geologists and seismologists as one of the most active seismic regions in the United States. The three major fault zones which pass through the Bay Area in a northwest direction have produced approximately a dozen earthquakes per century strong enough to cause structural damage. The faults causing these earthquakes are part of the San Andreas fault system, a major rift in the earth's crust that extends for at least 450 miles along the California Coast and includes the San Andreas, San Gregorio, Hayward and Calaveras faults. The site is located approximately 3.4 miles northeast of the San Andreas fault, 12.4 miles northeast of the San Gregorio fault, 15.6 miles southwest of the Hayward fault and 21.5 miles southwest of the Calaveras fault. In addition, the site is located approximately 2.5 miles northwest of the potentially active Monte Vista-Shannon and approximately 500 feet south, 2.3 miles southwest, 2.4 miles northwest and 3.8 miles northwest of the inferred buried/concealed traces of the Quaternary (age undifferentiated) Stanford, Palo Alto, Pulgas and Hermit faults, respectively. A regional fault map (Jennings & Bryant, 2010) is presented on Drawing 3.

The distances between the site and the capable segments of the above faults, as well as other significant faults within a radius of 60 miles from the site, were determined using the USGS Earthquake Hazards Program 2008 USGS National Seismic Hazard Maps – Fault Parameters, as presented below in Table 1:

TABLE 1 - Summary of Significant Earthquake Faults Capable of Generating Strong Ground Shaking at the Veterans Memorial Senior Center and YMCA Complex Project Site, Redwood City [1], [2]

Earthquake Generating Fault	Approximate Distance and Direction to Generating Fault (Miles)	Maximum Earthquake (Moment Magnitude)
Monta Vista - Shannon	2.5 SW	6.5
N. San Andreas SAO+SAN+SAP+SAS	3.4 SW	8.1
San Gregorio Connected	12.4 SW	7.5
Hayward-Rodgers Creek RC+HN+HS	15.6 NE	7.3
Calaveras CN+CC+CS	21.5 NE	7.0
Mount Diablo Thrust	28.3 NE	6.7
Zayante-Vergeles	30.2 SW	7.0
Green Valley Connected	32.5 NE	6.8
Greenville Connected	34.1 NE	7.0
Monterey Bay-Tularcitos	38.5 SE	7.3
Great Valley 7	43.1 NE	6.9
Point Reyes	46.1 SE	6.9
West Napa	47.7 N	6.7
Ortigalita	54.5 SE	7.1

[1] USGS Earthquake Hazards Program 2008 USGS National Seismic Hazard Maps – Fault Parameters, ran August 15, 2018
[2] Site Latitude: 37.4724°N; Site Longitude: 122.2391 °W

Since the early 1800's, a number of major regional earthquakes have occurred along the San Andreas, San Gregorio, Hayward, Calaveras and other fault zones in the vicinity of the San Francisco Bay Area and the surrounding region, as shown on Drawing 4, Regional Earthquake Epicenter Map (Toppozada, et al, 2000). A discussion of significant regional historic earthquakes within a radius of 60 miles from the site is presented below.

Several major earthquakes have occurred on the San Andreas fault, including earthquakes having estimated magnitudes ranging from 6.5 to 7.0 in 1838, 1840, 1865, and 1890, the presumed epicenters of which are located about 13, 59, 27 and 53 miles southeast of the project site, respectively. The San Francisco Earthquake of 1906 had a Richter Magnitude of approximately 8.3, the epicenter of which was located approximately 21 miles northwest of the site. Earthquakes of magnitude 5.8 and 5.3 occurred in 1910 and 1957 with epicenters located

approximately 47 miles southeast and 21 miles northwest site; the 1957 Daly City earthquake caused approximately one million dollars (approximately eight million 2018 dollars) in damage. On October 17, 1989, the Loma Prieta Earthquake, which had its epicenter 36 miles southeast of the site and a recorded Moment Magnitude of 6.9, produced widespread damage throughout the San Francisco Bay Area. Most of the liquefaction-related damage caused by the Loma Prieta Earthquake was in areas of shallow water table (10 feet or less) underlain by unconsolidated fill and loose soil deposits, such as the Marina District of San Francisco, the westerly portion of Oakland, and downtown Santa Cruz. Damage resulting from liquefaction was not reported in the site vicinity (California Geological Survey, 2006).

The San Gregorio fault produced an earthquake of magnitude 5.8 with an epicenter approximately 31 miles south of the site in 1926.

In 1868, an earthquake having an estimated Richter Magnitude of 7.0 occurred along the Hayward fault at a location approximately 17 miles northeast of the project site. This earthquake opened fissures at random locations along the fault from San Pablo to Mission San Jose.

Historical earthquakes along the Calaveras fault include events in 1861, 1897, 1979, 1984 and 2007 with estimated or recorded magnitudes ranging from 5.6 to 6.1. These earthquakes had epicenters located approximately 25 miles northeast, 52 miles southeast, 47 miles southeast, 33 miles southeast and 26 miles east of the project site, respectively.

In 1836, an earthquake with an estimated magnitude 6.4 was reported along the Sargent fault, the epicenter of which was located approximately 57 miles southeast of the project site. An earthquake of magnitude 5.7 occurred on the Monterey Bay Complex in 1910 at a location approximately 47 miles southeast of the site. An earthquake with Richter Magnitude 5.4 experienced on the Concord fault in 1955 had its epicenter approximately 36 miles northeast of the site. Two earthquakes in 1980, along traces of the Greenville fault, had their epicenters approximately 36 miles northeast of the site; these earthquakes had Richter magnitudes of 5.5

and 5.8. On August 24, 2014, a branch of the West Napa fault produced a magnitude 6.0 earthquake, the epicenter of which is located approximately 52 miles north of the site. In addition, numerous earthquakes of magnitudes 4.0 or greater have been recorded throughout the San Francisco Bay Area along the San Andreas, San Gregorio, Hayward, Calaveras and other faults.

Modeling of earthquake occurrence probabilities over the 30-year period of 2014 to 2043 on both a statewide and regional basis was performed by the 2014 Working Group on California Earthquake Probabilities. The results of the study are presented in the Long-Term Time-Dependent Probabilities for the Third Uniform California Earthquake Forecast (Field, E.H., et. al., 2015). The report indicates a 72 percent probability that one or more earthquakes of magnitude 6.7 or greater will occur in the San Francisco Bay region between 2014 and 2043. Additionally, the probability of one or more regional earthquakes of magnitude 6.0 or greater over the same time period is indicated to be 98 percent. Likewise, the occurrence of at least one regional earthquake of magnitude 5.0 or greater over this time period is evaluated as being a near certainty.

Therefore, similar to most of the San Francisco Bay Area, it is reasonable to assume that the new buildings and other site improvements will be subjected to a moderate to large earthquake from one of the above-mentioned faults during their lifetime. During such an earthquake, strong ground shaking is likely to occur at the site.

GEOLOGIC AND SEISMIC HAZARDS EVALUATION

A. Fault Offset Hazard

Based on the findings of this investigation, including review of various relevant published geologic maps, we conclude that there are no known active or potentially active faults crossing the project site. The site is also not located within an Earthquake Fault Zone as defined by the State of California Alquist-Priolo Earthquake Fault Zoning Act (1974). Therefore, the hazard resulting from surface fault rupture or fault offset at the site is considered low.

B. Ground Shaking Hazards

1. Strong Ground Shaking

Strong ground shaking is likely to occur during the lifetime of the planned new buildings and other site improvements as a result of movement along one or more of the regional active faults discussed above. The new buildings and other site improvements will need to be designed and constructed in accordance with current standards of earthquake-resistant construction.

Ground shaking during an earthquake could cause furnishings which are not rigidly attached (such as bookshelves and file cabinets) to undergo movement with respect to the buildings. Design measures that minimize such potential movement and also minimize the adverse effects of such movement where they cannot be prevented should be utilized.

2. Soil Liquefaction

Liquefaction is a phenomenon in which saturated cohesionless soils lose strength during strong shaking and experience horizontal and vertical movements. Soils that are most susceptible to liquefaction are clean, loose, saturated, uniformly graded, fine-grained, clay-free sands and silts that lie within 50 feet of the ground surface.

The project site is located within a potential liquefaction hazard zone as shown on the Seismic Hazard Zones Map for the Palo Alto Quadrangle (California Geological Survey, 2006).

Our investigation found that the project site is generally underlain by predominantly stiff to hard silty clay and sandy clay, which were generally interlayered with and/or underlain by medium dense to dense clayey gravelly sand, gravelly clayey sand, gravelly sand, clayey sand and silty sand, further underlain by intact to weathered Franciscan Complex bedrock to the maximum depth explored of 49.5 feet, as discussed earlier.

The fine-grained sandy and silty clay layers were analyzed for liquefaction susceptibility using criteria from Bray and Sancio in their 2006 paper "Assessment of the Liquefaction Susceptibility of Fine-Grained Soils." This study found that fine-grained soils with a plasticity index of less than 12 and water content to liquid limit ratio of less than 0.85, or a plasticity index of 12 to 18 and water content to liquid limit ratio of less than 0.8, are not susceptible to liquefaction. Based on these criteria, the sandy and silty clay soils encountered in the borings were generally found not to be susceptible to liquefaction; The sandy clay layer encountered at depths of 7.5 to 9.25 feet in EB-5 did not have sufficient sampled material available to perform the plasticity testing; however, based on the free swell test data (70 percent), the plasticity data obtained from sandy clay layers at similar depths in adjacent borings (Plasticity Indices = 22 to 29 percent) and the

relatively high shear strength (4.25 ksf), this thin clay layer is not considered to be susceptible to liquefaction. Additionally, the intact and weathered bedrock encountered in the borings is considered non-liquefiable for the purposes of our analysis.

EB-2, EB-5, EB-8 and EB-10 were analyzed for liquefaction-induced settlement using the LiquefyPro computer program (Version 5.0) and a factor of safety (FOS) of 1.3 per CGS Special Publication 117A. The assumed groundwater depth used in the analysis was nine feet, as discussed above.

LiquefyPro evaluates liquefaction potential and calculates the settlement of saturated and unsaturated deposits due to seismic loads using SPT blowcount, total unit weight, fines content, peak horizontal acceleration and earthquake moment magnitude data. The program is based on the most recent publications of the NCEER Workshop and SP117 Implementation.

The results of our analysis indicate that the worst-case theoretical liquefaction-induced settlement is approximately one-quarter of an inch, with one-eighth of an inch of differential settlement predicted over a distance of 50 feet, using the calculated peak ground acceleration ($PGA_M = 0.741$) for the site as specified in Item 20 of CGS Note 48 (2013), and the Tokimatsu and Seed calculation method with magnitude scaling correction. The results and supporting data for the liquefaction analysis are included in Appendix A of this report.

Based on the above information, we conclude that the likelihood that the new buildings and other site improvements will be damaged by earthquake-induced soil liquefaction is low.

3. Soil Densification

The recognized procedures for evaluation of seismically-induced settlement in dry sandy soils (Tokimatsu and Seed, 1987; Pradel, 1998) are considered most applicable to non-cohesive loose clean sands with less than five percent fines (Day, 2002). The clayey sand and clayey gravelly sand layers encountered in EB-8 and EB-10 lying above the historic high groundwater level were conservatively analyzed for seismically-induced dry soil settlement using the LiquefyPro computer program. The calculated maximum earthquake-induced dry soil settlement for these layers is approximately one-quarter of an inch, with one-eighth of an inch of differential settlement predicted over a distance of 50 feet. The results and supporting data for the dry settlement analysis are included in Appendix A of this report.

Based on the above information, we conclude that the likelihood that the new buildings and other site improvements will be damaged by earthquake-induced soil densification is low.

4. Other Seismic Hazards

We have also considered the possibility of other seismically induced hazards that could potentially impact the new buildings and other site improvements, such as lateral spreading, soil lurching, landsliding and ground cracking.

Because of the site's gentle topography and the absence of a vertical "free face" in the site vicinity, the likelihood of lateral spreading or soil lurching is considered remote.

As indicated by the Seismic Hazard Zones Map for the Palo Alto Quadrangle (California Geological Survey, 2006), the site not located within a zone of required investigation for earthquake-induced landsliding. Since the topography of this area is relatively level, the likelihood of landsliding is considered remote.

Ground cracking may be caused by any of the phenomena described above. Since there is a low potential for liquefaction and seismically-induced dry settlement, lateral spreading, soil lurching and landsliding of the soils underlying the site, it is also considered unlikely that significant ground cracking will occur at the site.

C. Flooding

FEMA Flood Insurance Mapping (October 2012) indicates the site is located within Other Flood Areas, Zone X: "Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood."

Dam failure inundation mapping prepared by San Mateo County (2005) indicates that the site would be subject to inundation in the event that the Lower Emerald Dam failed catastrophically; however, such a failure is considered highly unlikely. The site is not located within known dam failure inundation zones for the other reservoirs in San Mateo.

The site is outside of the runup zone resulting from a seismically-generated tsunami (California Geological Survey, 2009). The site is also not within the vicinity of any lakes or reservoirs, therefore there is not a hazard at the site from seiches.

CONCLUSIONS AND RECOMMENDATIONS

Based on the findings of our investigation, we judge that there are no geologic hazards or constraints which would preclude the construction of the proposed new Veterans Memorial Senior Center and YMCA Complex project. From a soil and foundation engineering standpoint, we also conclude that the improvements can be constructed as planned provided the recommendations of this report are incorporated into the design and construction of the project.

The upper fill materials and sandy clay and silty clay soils encountered at the project site are moderately to critically expansive and are of variable consistency and strength, and therefore are considered unsuitable for support of the proposed building foundations and slabs in their present condition. We also anticipate that the upper soils at the site could become unstable under equipment wheel loads during the required building pad reworking/recompaction phase of work. Hence, to provide suitable support for conventional spread footings and slabs and a stable subgrade for construction traffic, we recommend that after the building pads have been cut to grade, the upper soils beneath the building footprints be chemically treated with five (5) percent by dry weight quicklime. The chemical soil treatment should extend to five feet below finished building pad subgrade (including that of any basements, depressed slab areas or elevator pits) or existing subgrade, or a depth of three feet below the bottoms of new footings, whichever is deeper, and five feet beyond the outer perimeter of the buildings and any associated walkway canopies, staircase or elevator footings. The buildings can then be supported on conventional isolated and continuous spread footings obtaining support in the properly compacted, chemically-treated soil.

Due to the moderately to critically expansive near-surface soils, a relatively thick section of non-expansive fill (i.e. 3/4-inch clean, free-draining crushed rock, Class 2 aggregate baserock) will be required below untreated concrete slabs-on-grade, pool shells, AC hardscape and new vehicular pavement areas. The thickness of required baserock can be reduced in areas where the subgrade has been chemically treated per the recommendations in this report.

Our analysis indicates that the combined worst-case theoretical seismically-induced liquefaction and dry soil settlement is approximately one-half inch with approximately one-quarter inch of differential settlement predicted over a distance of 50 feet.

The recommendations presented in the remainder of this report are contingent on our review of the earthwork and foundation plans for the project and our observation of the grading, foundation installation, concrete slab and pavement installation phases of the construction.

A. Earthwork

1. Stripping and Site Preparation

Any existing underground utilities, root bulbs, as well as any other site improvements which are to be removed should be cleared from the proposed construction area. Any below grade obstructions, such as buried tanks or old foundations, should then be removed to their full depth and extent and hauled from the site. The building sites and improvement areas should then be stripped to a sufficient depth to remove any remaining organic laden topsoil. Any areas of loose or soft materials that are exposed during the grading should also be removed or recompacted, as directed by our representative.

Holes resulting from the removal of underground obstructions (such as old foundations, basements, abandoned utilities or tree root bulbs) that extend below the planned finished grade should be cleared of loose soil and debris, then backfilled with suitable material compacted to the requirements discussed below for engineered fill (see Section 4, Fill Placement and Compaction).

2. Overexcavation, Chemical Treatment and Recompaction of the Building Pads

As discussed above, the soils underlying the new two-story building sites should be stabilized by chemically treating them with five (5) percent quicklime. In order to provide uniform, homogeneous foundation support conditions, the chemical soil treatment should extend to five feet below finished building pad subgrade (including that of any basements, depressed slab areas or elevator pits) or existing subgrade, or a depth of three feet below the bottoms of new footings, whichever is deeper, and five feet beyond the outer perimeter of the building and any associated walkway canopies, staircase or elevator footings.

The performance of the chemically-stabilized soil is highly dependent upon uniform mixing of the chemical additive into the soil and proper curing of the chemically treated soil mixture. Hence, this work should be performed by a specialty subcontractor using appropriately sized spreading and mixing equipment which will result in a uniform mixture throughout the recommend section to be treated.

It is anticipated that up to 18 inches of soil can be chemically treated in place using heavy-duty compaction equipment, such as a Rex 3-70 or similar compactor. A maximum 12-inch lift thickness is recommended where materials are removed and replaced as chemically-treated soil.

After satisfactory soil mixing has been achieved and the moisture content has been brought to optimum moisture for compaction, the recommended section of chemically treated soil should be recompacted to at least 90 percent relative compaction. Compaction should be performed using heavy compaction equipment such as a sheepsfoot roller or segmented wheeled compactor. Field density tests should be performed in the chemically treated soil during the mixing and compaction process as a

means of evaluating the contractor's compaction effort and compliance with the recommended minimum relative compaction.

The surface of the chemically treated subgrade should be kept moist for a minimum of four days after treatment and compaction is performed.

3. Subgrade Recompaction Outside Building Areas

After the new construction areas outside of the building pads have been cleared, stripped and excavated to required grade, the exposed soil should be moisture conditioned and compacted. The upper 12 inches of the exposed subgrade should be processed such that the moisture is at least two percent above the laboratory established optimum moisture content, and then compacted to at least 90 percent relative compaction as determined by ASTM Test Designation D1557. The moisture conditioning process should be observed by our representative.

The subgrade should be maintained at least two percentage points above the optimum moisture content prior to placing additional fill or Class 2 aggregate base. Should drying of the soils occur, they should again be scarified, moisture conditioned to the proper moisture content and recompacted.

Placement of stabilizing fabric (Mirafi 600X or equivalent) and a 12-to-18-inch thick layer of Class 2 aggregate baserock may be required to stabilize subgrade areas if excessive pumping or instability is observed, prior to placement of the required Class 2 aggregate baserock section. Alternatively, the subgrade can be chemically treated with five (5) percent by dry weight of a combination of 50 percent quicklime and 50 percent Portland cement to a depth of at least 18 inches to facilitate compaction and provide additional stability during the construction period.

Compaction should be performed using heavy compaction equipment such as a self-propelled compactor. Additional fill or baserock can be placed, as required, after the surface soils are moisture conditioned and recompacted.

4. Fill Placement and Compaction

Existing soils having an organic content of less than three percent by volume, and which are free of construction debris, can be used as engineered fill. Fill material should not, however, contain rocks or lumps greater than six inches in greatest dimension with not more than 15 percent larger than 2.5 inches. Any imported fill to be used to raise grades in building and pavement areas should be predominantly granular with a maximum plasticity index of 12. Imported fill to be placed within build pad areas should not contain ground-up asphalt. Any imported aggregate baserock placed within the building pad should be virgin/non-recycled.

Engineered fill should be compacted to at least 90 percent relative compaction, as determined by ASTM Test Designation D1557. Fill material should be spread and compacted in lifts not exceeding eight inches in uncompacted thickness. In order to achieve satisfactory compaction in the subgrade and fill soils, it is likely that it will be necessary to adjust the soil moisture content at the time of soil compaction. This may require that water be added and thoroughly mixed into any soils which are too dry, or that repeated scarification and "turning over" of the soils during periods of dry weather will be necessary in order to aerate and reduce the moisture content of any soils which are too wet.

5. Temporary Cutslopes and Shoring

Temporary excavations for the new buildings and pools in the sandy and silty clay soils encountered in the site investigation are anticipated to be reasonably stable at an inclination of 2:1 (horizontal to vertical). Any groundwater encountered or stormwater collected in the pool excavations should be removed.

There are a number of factors which can influence the stability of temporary excavations, some of which the contractor can control. The contractor, therefore, should be solely responsible for designing and constructing stable temporary excavations and should shore, slope or bench the excavations as required to maintain their stability and comply with all applicable safety standards, including CAL-OSHA requirements. The temporary shoring system design and performance should be the responsibility of the contractor.

6. Trench Backfill

The presently available subsurface information indicates that the required utility trenches can be excavated with conventional backhoe equipment. Trenches deeper than five feet should be properly braced or sloped in accordance with the current requirements of CAL-OSHA or the local governmental agency, whichever is more stringent.

Utility trenches should be backfilled with engineered fill placed in lifts not exceeding eight inches in uncompacted thickness, except thicker lifts can be used with the approval of our representative provided satisfactory compaction is achieved. If on-site soil is used, the material should be compacted to at least 90 percent relative compaction by mechanical means only. Imported clean sand also can be used for backfilling trenches provided it is compacted to at least 90 percent relative compaction. Chemically-treated soil removed during excavation of utility trenches should be replaced with Class 2 aggregate baserock.

In areas where chemical stabilization/treatment has been performed, the material from any trenches excavated through the treated soil section should be removed and stockpiled separately, so as to keep it separate from and uncontaminated by, the untreated soils. The treated soils, if observed to be uncontaminated by our representative, may be used as backfill within the trench within the specified treatment section.

Water jetting to achieve the required level of backfill compaction should not be permitted.

7. Surface Drainage

Positive surface gradients of at least two percent on porous surfaces and one percent on paved surfaces should be maintained adjacent to the buildings so that water does not collect in the vicinity of the foundations. Water from roof downspouts should be collected into closed pipes or discharged onto impermeable surfaces, which carry the runoff away from the building and discharge into approved drainage facilities.

8. Construction Observation

Grading and earthwork should be observed and tested by our representative for conformance with the project plans/specifications and our recommendations. This work includes site preparation, selection of satisfactory fill materials, and placement and compaction of the subgrades and fills. Sufficient notification prior to commencement of earthwork is essential to make certain that the work will be properly observed.

B. Building Foundations

Following chemical treatment of the subgrade soils as described previously, the new buildings can be supported on conventional continuous and isolated spread footings which obtain support in undisturbed chemically-treated engineered fill. Footings should be founded at least 24 inches below lowest adjacent finished grade and be embedded at least 18 inches into the supporting subgrade soil. Continuous footings should have a minimum width of 18 inches and isolated footings should be at least 24 inches square. Footings located adjacent to utility trenches should have their bearing surfaces below an imaginary 1.5:1 (horizontal to vertical) plane projected upward from the edge of the bottom of the trench. Care should be taken to keep the footings moist by spraying lightly prior to the concrete pour.

At the above depths, footings can be designed for an allowable bearing pressure of 2000 psf due to dead loads with a one-third increase for dead plus live loads (2667 psf) and a 50 percent increase for total design loads (3000 psf) including wind and seismic. A modulus of subgrade reaction of 100 pci can be used for staircase and elevator mat slab design, if required. All continuous footings should be provided with adequate top and bottom reinforcement (as specified by the structural engineer) to provide structural continuity and to permit spanning of local irregularities. The steel reinforcement requirements should be determined by the structural engineer.

Lateral loads may be resisted by friction between the foundation bottoms and the supporting subgrade. A friction coefficient of 0.25 is considered applicable. As an alternative, an equivalent fluid pressure of 250 pcf starting one-half foot below the ground surface can be taken against the sides of footings poured neat.

Soil conditions in the foundation excavations should be checked by our representative prior to placing reinforcing steel or concrete.

Post-construction settlements of the spread footing foundation under proposed loads are expected to be within tolerable limits.

C. Trellis Structure Foundations

The planned new trellis structures can be supported on cast-in-place, straight shaft friction piers. The piers should extend through any existing fill and loose soil, and at least eight feet into the underlying native stiff to hard sandy clay and silty clay soils. Drilled piers should have a minimum diameter of 18 inches. Piers should be spaced no closer than three diameters center to center. The actual pier diameters and depths for vertical and lateral support requirements should be determined by the project structural engineer.

The portion of the drilled piers within native soils can be designed on the basis of 300 psf skin friction with a 50 percent increase for wind and seismic conditions. Point bearing resistance should be neglected. For resistance to lateral loads, a uniform passive equivalent fluid pressure of 250 pcf up to 2500 psf maximum can be assumed to act over 1.5 times the projected area of the individual pier shaft. The skin friction and passive pressure can be assumed to start two feet below the ground surface, or five feet below the ground surface in the vicinity of existing underground structures, such as culverts. An allowable negative skin friction value of 225 psf within native soil can be used on the pier sidewall to resist uplift forces. The skin friction and passive pressure can be assumed to start two feet below the ground surface or below adjacent foundation plane of influence and existing culverts (anticipated depths of five feet).

Medium dense to dense non-cohesive granular soils and groundwater are likely to be encountered during drilling and it should be anticipated that sloughing of the drilled pier sidewalls will occur. Therefore, the contractor should be prepared to place rebar in the pier excavations and pour concrete immediately after drilling, or case the pier holes during drilling and remove the casing

during the concrete pour. Any accumulated water in the pier holes should be removed prior to concrete installation, or concrete should be installed using the tremie method.

The bottom of the pier excavations should be free of loose soil or fall-in prior to installing reinforcing steel and placing concrete. Heavy-duty drilling equipment in good working condition should be used to drill the pier holes. This work should be performed under the observation of our representative.

Reinforcement of the piers should be provided for their full length. Minimum pier reinforcement should consist of four No. 5 bars tied in a cage. Greater reinforcement may be required as determined by the structural engineer's analysis.

Settlements under the anticipated loads are expected to be within tolerable limits for the proposed construction.

D. Swimming Pools

The findings of this investigation indicate that the swimming pools will bottom in stiff to hard, moderately to critically expansive sandy clay soil. Accordingly, we recommend that the pool bottom be underlain by 18 inches of Class 2 aggregate baserock overlain by six inches of 3/4-inch clean crushed rock, following recompaction of the upper 12 inches of pool subgrade to at least 90 percent relative compaction. It is anticipated that the pool subgrade soils will be above optimum moisture content and will likely need to be dried back. Our representative should be called to the site to observe the pool excavation and subgrade preparation prior to the placement of the baserock. Placement of stabilizing fabric (Mirafi 600X or equivalent) and a 12-to-18-inch thick layer of Class 2 aggregate baserock may be required to stabilize the pool bottom if excessive pumping or instability is observed, prior to placement of the required Class 2 aggregate baserock section.

Due to the relatively low permeability of the underlying stiff to hard sandy clays and the presence of a shallow groundwater table, as discussed above, it is likely that groundwater could occur at or near the bottom of the pool. Therefore, we recommend that one or more pressure relief valves be installed in the bottom of the pool for periods when the pool is to be emptied for maintenance or painting.

The swimming pool walls should be designed to withstand an equivalent fluid pressure of 60 pcf lateral earth pressure. The soil conditions exposed in the pool sidewalls and bottom should be evaluated by our representative at the time of excavation.

Vertical cuts in soils are vulnerable to caving and failure, especially under very dry or saturated conditions. The excavated pool walls should be kept at approximately optimum moisture content to reduce the risk of sloughing. Allowing the walls to dry out, construction during wet weather conditions, or vibrations from heavy equipment loadings could increase the risk of local slope failure. If clayey sand soils are encountered within the pool excavation, it may be necessary to gunite and/or shore the pool excavation sidewalls.

If construction is performed during the wet weather season and/or the water table is encountered in the pool excavation, it may be necessary to install a drainage blanket along the bottom or around the perimeter of the excavation, which can drained by sump pumps. The contractor should be solely responsible for the design of such a dewatering system.

E. Seismic Design Parameters

Seismic design values for the project were determined using the USGS Seismic Design Maps Web Tool Application with the 2008 USGS Hazard Data and the 2010 ASCE 7 (with July 2013 errata), and the subsurface information obtained from the exploratory boring which was used for determining the site classification. A site-specific seismic hazard analysis is also required (per

CBC 2013 Section 1616A.1.3) for the shade structure location, as the site is assigned to Seismic Design Category E (per CBC 2013 Section 1613A.3.5, S_1>0.75). The site-specific design parameters should be used for structural design.

The site-specific seismic hazard analysis was performed in accordance with Chapter 11 and Chapter 21, ASCE 7-10, the 2013 California Building Code and USGS 2008 California seismic source maps.

Seismic design values for the project were determined using the code guidelines, the most recent version of the USGS Web Tool, the EZ-FRISK application (Version 7.65.004), and subsurface information obtained from the exploratory borings which was used for determining the site classification. Using the site Latitude (37.4724°N) and Longitude (122.2391°W), the site classification, and the attenuation curves of Boore-Atkinson (2008) NGA USGS 2008 MRC, Campbell-Bozorgnia (2008) NGA USGS 2008 MRC and Chiou-Youngs (2007) NGA USGS 2008 MRC as input, the computer application provides probabilistic and deterministic spectral ground motion information including the 84th percentile and maximum rotated component at five percent damping. Risk Coefficients (C_R) for each period were calculated using Method 1 as presented in Section 21.2.1.1 of the 2010 ASCE 7, and then applied to the probabilistic MCE to obtain the probabilistic MCE_R ground motion.

Based on the subsurface information (and standard penetration blow counts) obtained from the exploratory borings which extended to depths of up to 45 feet, and the shear strength values from laboratory testing of the soil samples, it is our opinion that the site should be categorized as high Site Class D with a conservative shear wave velocity (Vs30) of 1200 ft/s (366 m/s).

The data obtained from our analysis based on ASCE 7-10 guidelines is shown in table form on Drawing 30, Site Specific Ground Motion Spectra, and in graphical form on Drawing 31.

The modal magnitude and distance to the California Gridded fault source are 7.00 (Mw) and 5.00 kilometers, respectively. Based on information provided in Appendix O of the USGS Open File Report 2013-1165, CGS Special Report 228, and Southern California Earthquake Center Publication 1792, the California Gridded seismicity sources are points or planer fault sources at the centers of evenly spaced grid cells in polygon-shaped areas that make up the UCERF3 forecast region. The polygons "express future distributed earthquake occurrences and account for the fact that many large earthquakes do not occur on known, mapped faults."

The modal magnitude and distance to the San Andreas Fault (Northern) are 8.05 (Mw) and 5.34 km, respectively.

These seismic sources generated the highest spectral acceleration values for all faults located within 100 km of the site.

Based on the findings of our investigation and the site-specific seismic hazard analysis, the following seismic design parameters can be used in lateral force analyses at this site:

Site Class D - Stiff Soil Profile with Standard Penetration Test Values of 15 to 50 blows/foot

<u>USGS Code Based Web Tool Values</u>:

Site Coefficient $F_a = 1.0$
Site Coefficient $F_v = 1.5$
Mapped Spectral Acceleration Values; $S_S = 1.882$, $S_1 = 0.878$
Spectral Response Accelerations; $SM_S = 1.8182$, $SM_1 = 1.317$
Design Spectral Response Accelerations; $SD_S = 1.255$, $SD_1 = 0.878$

<u>Site-specific Ground Motion Analysis Values (ASCE 7-10 Chapter 11, 21 and 2013 CBC)</u>:

Maximum Considered EQ Spectral Response (0.2 Second Period); $SM_S = 2.29$
Maximum Considered EQ Spectral Response (1-Second Period); $SM_1 = 1.81$
Design Spectral Response Acceleration (0.2 Second Period); $SD_S = 1.52$
Design Spectral Response Acceleration (1-Second Period); $SD_1 = 1.21$
Seismic Design Category E ($S_1 > 0.75$)

F. Slabs-on-Grade

Slab-on-grade construction will be used for building slabs and pedestrian and vehicular exterior slabs, including pool decks.

Interior slabs should be underlain by a minimum 15 mil vapor retarder of permeance less than or equal to 0.01 perms (as tested by ASTM F1249) placed over six inches of 3/4-inch clean, free draining crushed rock placed on the chemically treated fill section as described in Section A.2. The drain rock surface should be vibroplated to level out and densify the rock layer. Care should be taken to prevent wear, punctures and/or tearing of the membrane during the construction phase (such as could result from the placement of rebar) subsequent to its installation; any tears or punctures should be tightly sealed. All drainrock, baserock or import material of any kind placed beneath interior slabs or within the building pad/building envelope should be virgin "non-recycled" material.

Exterior concrete flatwork, sidewalks and curb and gutters should be underlain by at least 18 inches of Class 2 aggregate baserock placed on the prepared subgrade, if chemical treatment of these areas is not performed. Alternatively, the underlying subgrade can be chemically-treated to a depth of 18 inches with five (5) percent by dry weight of quicklime, the recommended thickness of the Class 2 aggregate baserock section in these chemically-treated areas can be reduced to six inches.

The moisture content of the compacted subgrade should be maintained at, or slightly above, a moisture content of two percent above optimum followed by placement of the non-expansive fill materials to "seal in" the moisture. Just prior to final slab preparation, the slab or paver subgrade should be checked to determine that the upper 12 inches of native soils are at least at optimum moisture content and proof-rolled to provide a smooth, firm non-yielding surface with uniform support.

The baserock and upper 12 inches of underlying subgrade should be compacted to at least 90 percent relative compaction, or 95 percent in areas of vehicular traffic.

Reinforcement of slabs should be provided in accordance with their anticipated use and loading, but as a minimum, slabs should be reinforced with No. 3 bars at 18 inches on center, both ways, or No. 4 bars at 24 inches on center, both ways. Concrete slabs should be articulated with a maximum joint spacing of ten feet in both directions.

G. Flexible Pavements

The near-surface soils at the site have an R-Value of less than five based on the laboratory test results. The required thickness of the pavement section can be reduced by chemically-treating the pavement subgrade (an R-Value of 69 was obtained on a chemically-treated soil sample) to a depth of 18 inches, as described below. Chemical treatment will also mitigate pumping subgrade conditions typically encountered during wet season construction. Utilizing the estimated Traffic Indices presented below, and Design Procedure 301-F of the California Department of Transportation, we have prepared the following minimum alternative flexible pavement sections:

TABLE 2 - Recommended Flexible Pavement Sections

Traffic Condition	Asphaltic Concrete (inches)	Class 2 Aggregate Base (inches)	Chemical Subgrade Treatment (inches)	Total Thickness (inches)
Auto Parking (T.I. = 4.5)				
Untreated	**2.5**	**11.0**	**- -**	**13.5**
Chemically Treated	**2.5**	**6.0**	**18.0**	**26.5**
Fire Lanes and Driveways (T.I. = 6.0)				
Untreated	**4.0**	**13.0**	**- -**	**17.0**
Chemically Treated	**4.0**	**6.0**	**18.0**	**28.0**

The performance of the chemically-stabilized soil is highly dependent upon uniform mixing of the chemical additive into the soil and proper curing of the chemically treated soil mixture. Hence, this work should be performed by a specialty subcontractor using appropriately sized spreading and mixing equipment which will result in a uniform mixture throughout the recommend section to be treated.

It is anticipated that up to 18 inches of soil can be chemically treated in place using heavy-duty compaction equipment, such as a Rex 3-70 or similar compactor. A maximum 12-inch lift thickness is recommended where materials are removed and replaced as chemically-treated soil.

After satisfactory soil mixing has been achieved and the moisture content has been brought to optimum moisture for compaction, the recommended section of chemically treated soil should be recompacted to at least 90 percent relative compaction. Compaction should be performed using heavy compaction equipment such as a sheepsfoot roller or segmented wheeled compactor. Field density tests should be performed in the chemically treated soil during the mixing and compaction process as a means of evaluating the contractor's compaction effort and compliance with the recommended minimum relative compaction.

The surface of the chemically treated subgrade should be kept moist for a minimum of four days after treatment and compaction is performed.

The upper 12 inches of subgrade and Class 2 aggregate baserock section should be compacted to at least 95 percent relative compaction. Any fill required below the upper 12 inches of subgrade should be compacted to at least 90 percent.

The subgrade should be statically rolled with a heavy, smooth drum roller to provide a smooth firm surface. Any unstable or pumping subgrade areas should be chemically treated to a minimum depth of 18 inches, or subexcavated, plugged with baserock and overlain with a stabilizing fabric such as Mirafi 600X. Fabric installation should be performed in accordance with the manufacturer's recommendations. The method and extent of any required stabilization work should be evaluated by our representative.

Class 2 aggregate base should have an R-Value of at least 78 and conform to the requirements of Section 26, State of California "CALTRANS" Standard Specifications, latest edition. The aggregate base material should be placed in thin lifts in a manner to prevent segregation, and should be uniformly moisture conditioned and compacted to at least 95 percent relative compaction to provide a smooth, unyielding surface.

The asphaltic concrete should conform to and be placed in accordance with the requirements of Section 39 in the State of California CALTRANS Standard Specifications, latest edition. The asphaltic concrete should be compacted to at least 95 percent relative compaction.

New AC hardscape should consist of a minimum of two and one-half inches of asphalt concrete over 12 inches of Class 2 aggregate baserock, or six inches in chemically treated soil areas. The upper 12 inches of soil subgrade should be compacted to at least 90 percent relative compaction. Any fill required below the upper 12 inches of subgrade should be compacted to at least 90 percent.

H. Percolation Testing Results

Two percolation test holes, PERC-1 and PERC-2, were installed in irrigated grass landscaping immediately adjacent to the locations of EB-3 and EB-7, respectively, as shown on Drawing 5, Site Plan. The approximately eight-inch diameter percolation test wells were drilled to a depth of approximately five feet below the ground surface, and the sides and bottom of the holes were scraped and cleared of loose soil. The bottoms of the wells were then filled with pea-gravel to a depth of approximately two inches and a four-inch diameter perforated pipe was installed. The annular space around the pipe was backfilled with additional pea-gravel. The holes were then "pre-soaked" by filling with water and left overnight. Water level percolation rates in the wells were subsequently measured intermittently the following day to establish the field percolation rate. The results of our analysis of the data from the field indicated a percolation rate of zero inches per hour in the clay soil.

I. Soil Corrosivity

Laboratory resistivity, pH, chloride and sulfate testing was performed on a composite soil sample obtained from the upper three feet of the borings during our geotechnical investigation for this project. The testing was performed by Cooper Testing Laboratory for the purpose of evaluating the soils' corrosion potential for use in the design of underground utilities and embedded concrete on this project.

In summary, the test results indicated a minimum resistivity of 733 Ohm-Cm, a pH of 7.8, a chloride content of 21 ppm, and water-soluble sulfate content of 27 ppm. Based on the resistivity testing, the soils are considered corrosive, as indicated in Table 3 below.

Table 3 - Correlation Between Resistivity and Corrosion Potential

Soil Resistivity (ohm-cm)	Soil Classification
Below 500	Very Corrosive
500 to 1,000	Corrosive
1,000 to 2,000	Moderately Corrosive
2,000 to 10,000	Mildly Corrosive
Above 10,000	Progressively Less Corrosive

(c) National Association of Corrosion Engineers.

The corrosive and mildly basic soils encountered at the site could result in reduced life span of buried steel piping and culverts for this project. Thicker gauge pipelines would have greater life spans. For example, the life spans for 18, 16 and 14-gauge steel culverts with a soil resistivity of 733 ohm-cm and a pH of 7.8 are estimated to be roughly 22, 29 and 35 years, respectively (California Division of Highways, 1993).

Based on the resistivity and sulfate testing, for the purposes of design of concrete in contact with the soil against acid and sulfate exposure conditions, there are no cementitious material or water content restrictions (Caltrans Highway Design Manual, 2001).

PLAN REVIEW AND CONSTRUCTION OBSERVATION

We should be provided the opportunity to review the foundation and grading plans and the specifications for the project when they are available. We should also be retained to provide soil engineering observation and testing services during the grading and foundation installation phases of the project. This will provide the opportunity for correlation of the soil conditions found in our investigation with those actually encountered in the field, and thus permit any necessary modifications in our recommendations resulting from changes in anticipated conditions.

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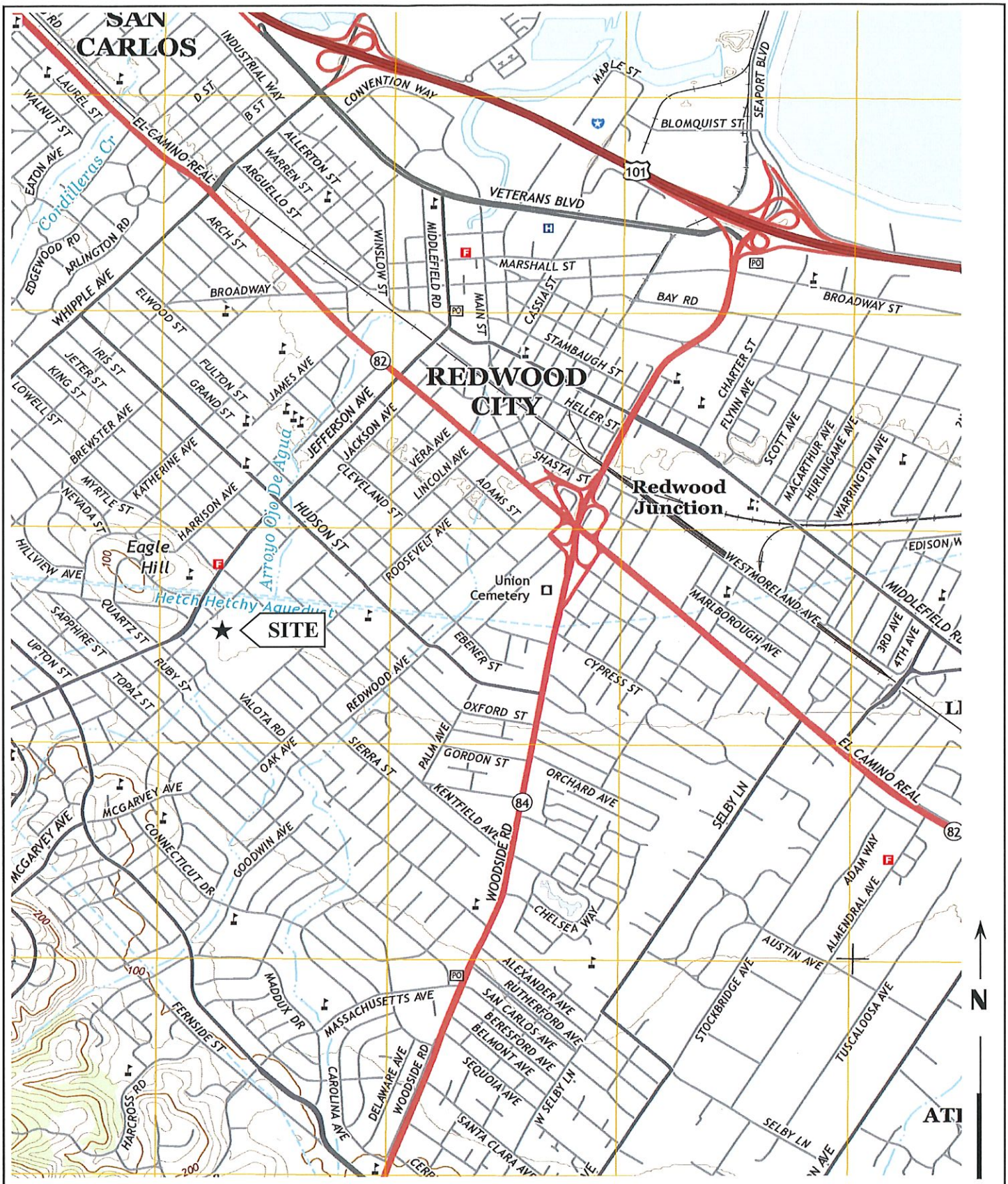
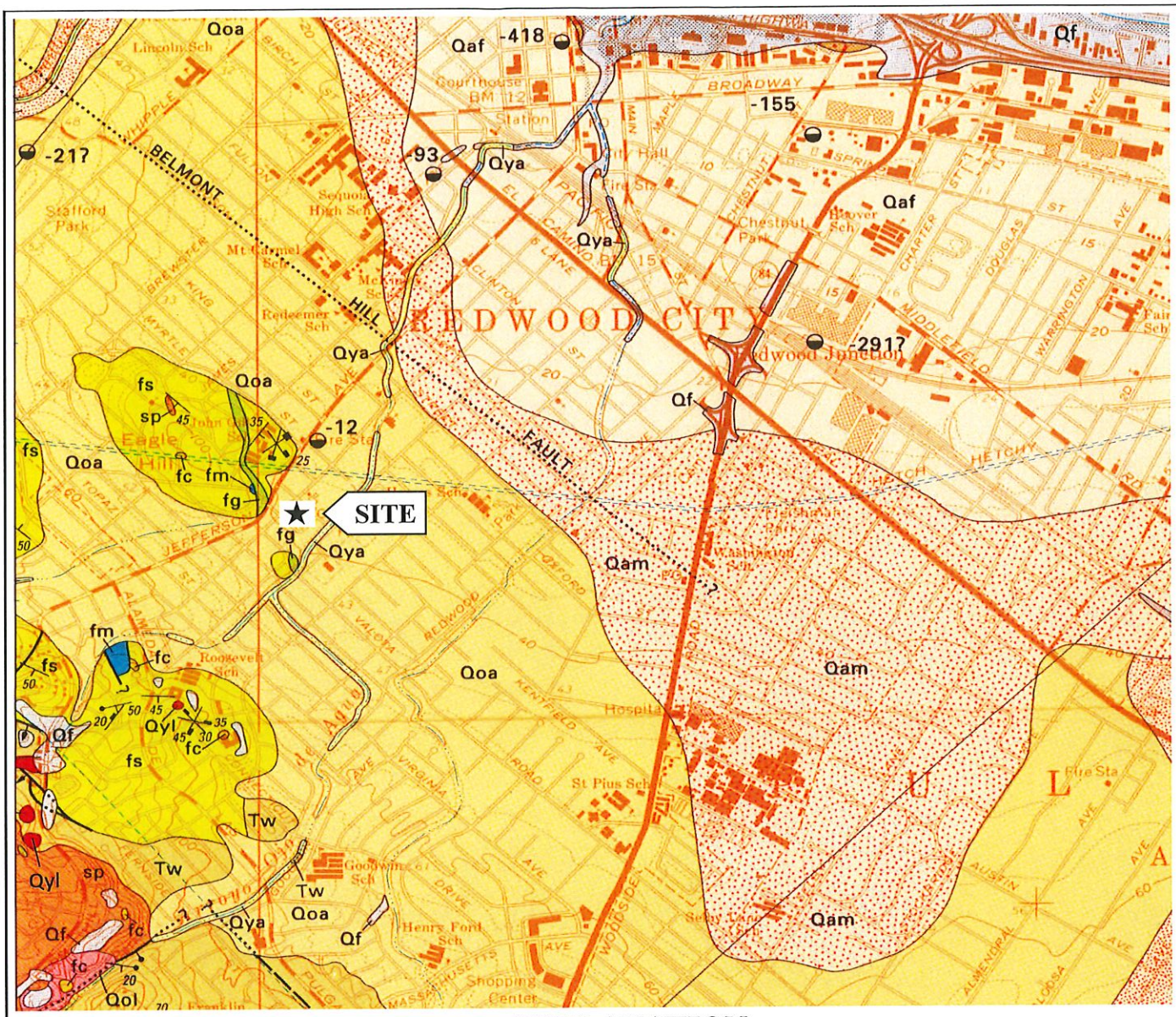


BASE: U.S. Geological Survey, 2015, Palo Alto 7.5' Quadrangle, San Mateo County, California

SITE VICINITY MAP

CLEARY CONSULTANTS, INC. *Geotechnical Engineers and Geologists*		VETERANS MEMORIAL SENIOR CENTER & YMCA COMPLEX City of Redwood City Redwood City, California		
APPROVED BY	**SCALE**	**PROJECT NO.**	**DATE**	**DRAWING NO.**
GF	1" = 2000'	1398.1	August 2018	1



EXPLANATION

Qf	Artificial Fill	**fs**	Franciscan Complex Sandstone
Qya	Younger Alluvium	**fg**	Franciscan Complex Greenstone
Qaf	Fine-Grained Alluvium	**fc**	Franciscan Complex Chert
Qam	Medium-Grained Alluvium	**sp**	Franciscan Complex Serpentinite
Qyl	Younger Landslide Deposits		
Qol	Older Landslide Deposits	45	Bedding Strike and Dip
Qoa	Older Alluvium		
Tw	Whiskey Hill Formation		Fault, dashed where inferred, dotted where concealed

N

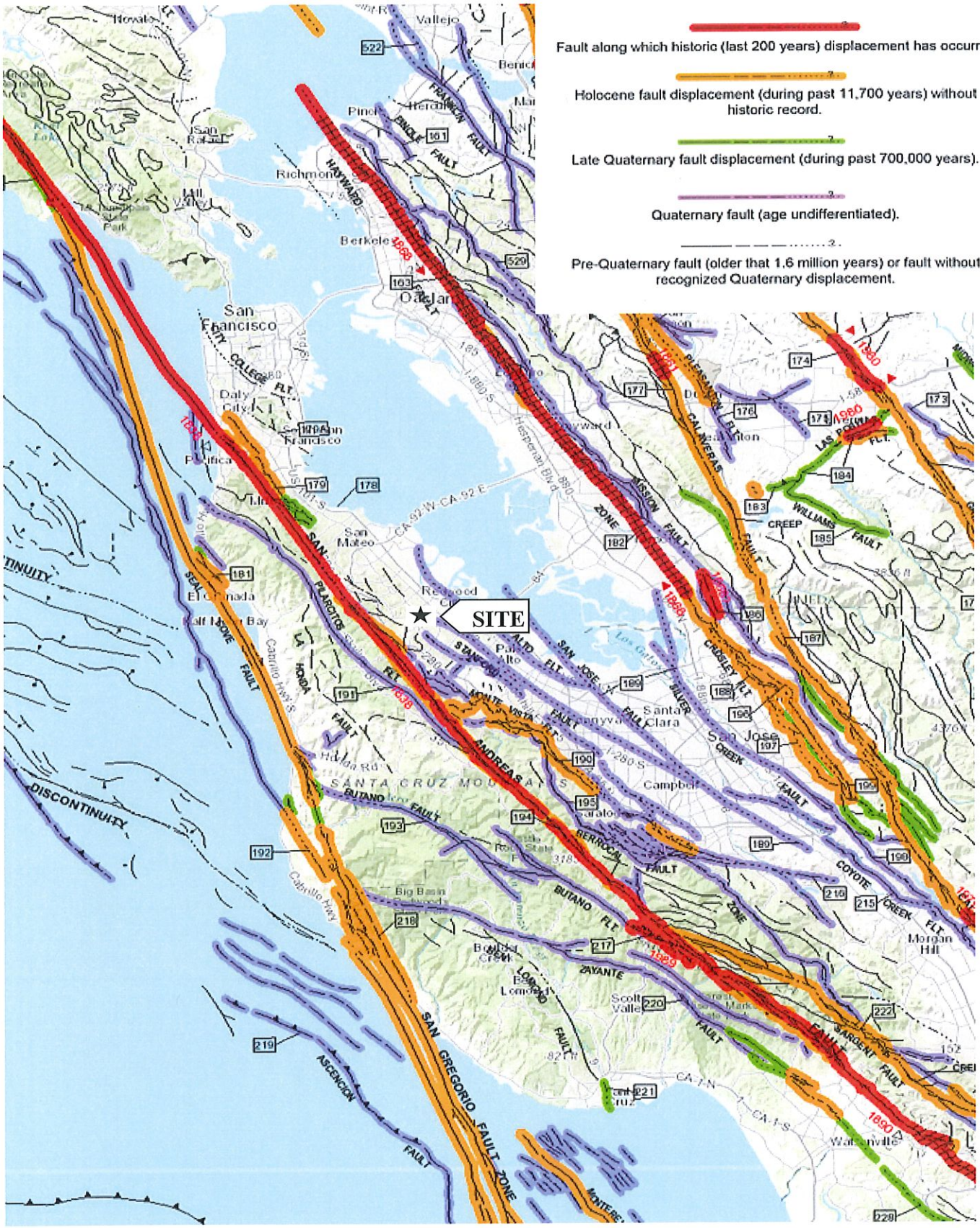
BASE: Pampeyan, E.H., 1993, Geologic Map of the Palo Alto and Part of the Redwood Point 7-1/2' Quadrangles, San Mateo and Santa Clara Counties, California, USGS Map I-2371.

LOCAL GEOLOGIC MAP

CLEARY CONSULTANTS, INC.
Geotechnical Engineers and Geologists

VETERANS MEMORIAL SENIOR CENTER & YMCA COMPLEX
City of Redwood City
Redwood City, California

APPROVED BY	SCALE	PROJECT NO.	DATE	DRAWING NO.
GF	1" = 2000'	1398.1	August 2018	2



BASE: Jennings, C.W., and Bryant, W.A., 2010, Fault Activity Map of California

REGIONAL FAULT MAP

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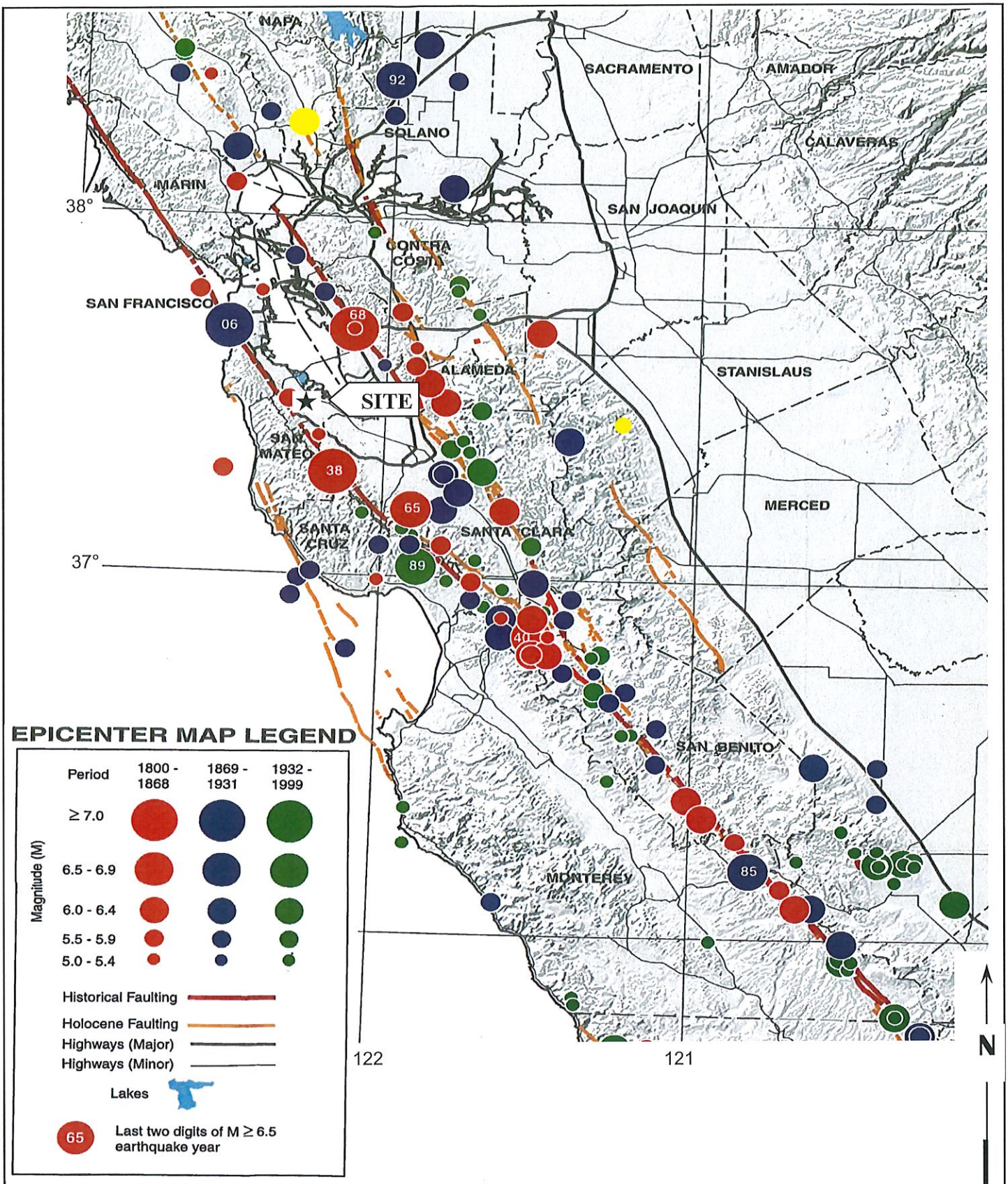
VETERANS MEMORIAL SENIOR CENTER & YMCA COMPLEX
City of Redwood City
Redwood City, California

APPROVED BY	SCALE	PROJECT NO.	DATE	DRAWING NO.
GF	1" = 10 miles ±	1398.1	August 2018	3



BASE: CDMG Map Sheet 49; Toppozada et al, 2000. Magnitude 5.0 and Greater Earthquakes Plotted Through 1999; Subsequent Earthquakes through August 2014 plotted in yellow.

REGIONAL EARTHQUAKE EPICENTER MAP

CLEARY CONSULTANTS, INC.
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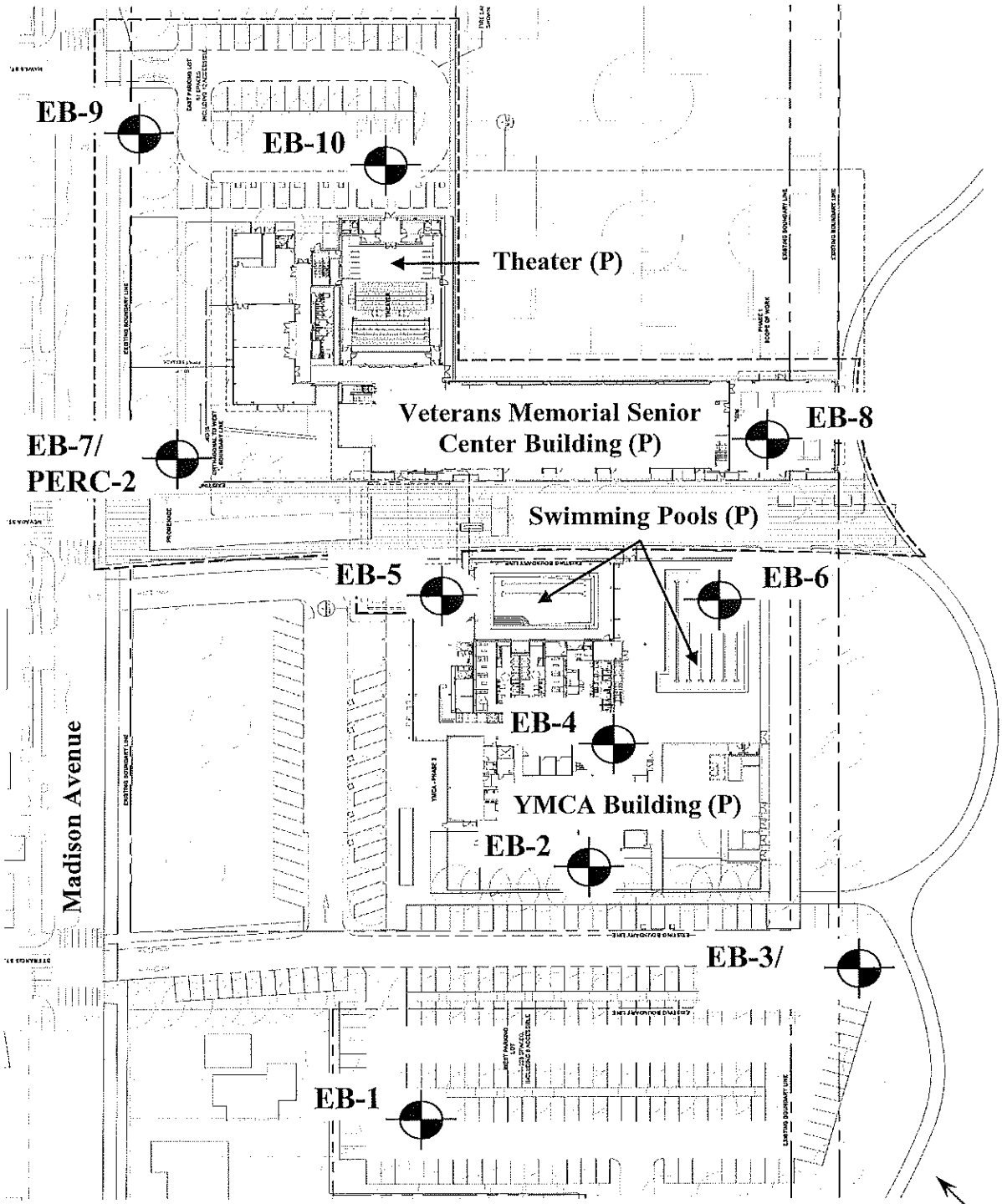
VETERANS MEMORIAL SENIOR CENTER & YMCA COMPLEX
City of Redwood City
Redwood City, California

APPROVED BY	SCALE	PROJECT NO.	DATE	DRAWING NO.
GF	1" = 25 miles ±	1398.1	August 2018	4



EXPLANATION

EB-1 ⊕ Approximate Location of Exploratory Boring/Percolation Test

BASE: Prepared by ELS Architecture and Urban Design, dated July 20, 2018

SITE PLAN

CLEARY CONSULTANTS, INC.
Geotechnical Engineers and Geologists

VETERANS MEMORIAL SENIOR CENTER & YMCA COMPLEX
City of Redwood City
Redwood City, California

APPROVED BY	SCALE	PROJECT NO.	DATE	DRAWING NO.
GF	1" = 100' ±	1398.1	August 2018	5

PRIMARY DIVISIONS			GROUP SYMBOL	SECONDARY DIVISION
COARSE GRAINED SOILS MORE THAN HALF OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVELS MORE THAN HALF OF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE	CLEAN GRAVELS (LESS THAN 5% FINES)	GW	Well graded gravels, gravel-sand mixtures, little or no fines
			GP	Poorly graded gravels or gravel-sand mixtures, little or no fines
		GRAVEL WITH FINES	GM	Silty gravels, gravel-sand-silt mixtures, non-plastic fines
			GC	Clayey gravels, gravel-sand-clay mixtures, plastic fines
	SANDS MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE	CLEAN SANDS (LESS THAN 5% FINES)	SW	Well graded sands, gravelly sands, little or no fines
			SP	Poorly graded sands or gravelly sands, little or no fines
		SANDS WITH FINES	SM	Silty sands, sand-silt mixtures, non-plastic fines
			SC	Clayey sands, sand-clay mixtures, plastic fines
FINE GRAINED SOILS MORE THAN HALF OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS LIQUID LIMIT IS LESS THAN 50%		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
			OL	Organic silts and organic silty clays of low plasticity
	SILTS AND CLAYS LIQUID LIMIT IS GREATER THAN 50%		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
			CH	Inorganic clays of high plasticity, fat clays
			OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS			Pt	Peat and other highly organic soils

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D-2487)

U.S. STANDARD SERIES SIEVE				CLEAR SQUARE SIEVE OPENINGS				
200	40	10	4	3/4"	3"	12"		
SILTS AND CLAYS	SAND			GRAVEL		COBBLES	BOULDERS	
	FINE	MEDIUM	COARSE	FINE	COARSE			

GRAIN SIZES

SANDS AND GRAVELS	BLOWS/FOOT ✧
VERY LOOSE	0 - 4
LOOSE	4 - 10
MEDIUM DENSE	10 - 30
DENSE	30 - 50
VERY DENSE	OVER 50

RELATIVE DENSITY

SILTS AND CLAYS	STRENGTH ★	BLOWS/FOOT ✧
VERY SOFT	0 - 1/4	0 - 2
SOFT	1/4 - 1/2	2 - 4
FIRM	1/2 - 1	4 - 8
STIFF	1 - 2	8 - 16
VERY STIFF	2 - 4	16 - 32
HARD	OVER 4	OVER 32

CONSISTENCY

✧ Number of blows of 140 pound hammer falling 30 inches to drive a 2 inch O.D. (1-3/8 inch I.D.) split barrel (ASTM D-1586).

★ Unconfined compressive strength in tons/sq.ft. as determined by laboratory testing or approximated by the standard penetration test (ASTM D-1586), pocket penetrometer, torvane, or visual observation.

CLEARY CONSULTANTS, INC.
Geotechnical Engineers and Geologists

KEY TO EXPLORATORY BORING LOGS

VETERANS MEMORIAL SENIOR CENTER & YMCA COMPLEX
City of Redwood City
Redwood City, California

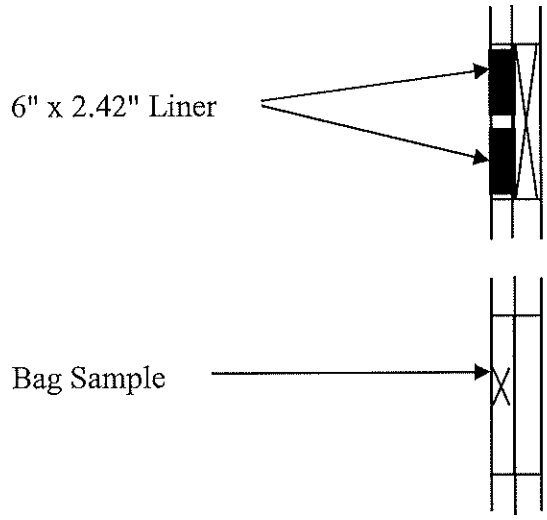
PROJECT NO.	DATE	DRAWING NO.
1398.1	August 2018	6

FIELD SAMPLING PROCEDURES

The soils encountered in the borings were continuously logged in the field by our representative and described in accordance with the Unified Soil Classification System (ASTM D-2487).

Representative soil samples were obtained from the borings at selected depths appropriate to the soil investigation. All samples were returned to our laboratory for classification and testing.

In accordance with the ASTM D1586 procedure, the standard penetration resistance was obtained by dropping a 140 pound hammer through a 30-inch free fall. The 2-inch O.D. Standard split barrel sampler was driven 18 inches or to practical refusal and the number of blows were recorded for each 6-inch penetration interval. The blows per foot recorded on the boring logs represent the accumulated number of blows, or N-value, required to drive the penetration sampler the final 12 inches. In addition, 3-inch O.D. x 2.42-inch I.D. drive samples were obtained using a Modified California Sampler and 140 pound hammer. Blow counts for the Modified California Sampler were converted to standard penetration resistance by multiplying by 0.6. The sampler type is shown on the boring logs in accordance with the designation below.



Where obtained, the shear strength of the soil samples using either Torvane (TV) or Pocket Penetrometer (PP) devices is shown on the boring logs in the far right hand column.

CLEARY CONSULTANTS, INC. *Geotechnical Engineers and Geologists*	SUMMARY OF FIELD SAMPLING PROCEDURES VETERANS MEMORIAL SENIOR CENTER & YMCA COMPLEX City of Redwood City Redwood City, California		
	PROJECT NO.	DATE	DRAWING NO.
	1398.1	August 2018	7

LABORATORY TESTING PROCEDURES

The laboratory testing program was directed toward a quantitative and qualitative evaluation of the physical and mechanical properties of the soils underlying the site.

The natural water content was determined on 133 samples of the materials recovered from the borings in accordance with the ASTM D2216 Test Procedure. These water contents are recorded on the boring logs at the appropriate sample depths.

Dry density determinations were performed on 105 samples to measure the unit weight of the subsurface soils in accordance with the ASTM D2937 Test Procedure. The results of these tests are shown on the boring logs at the appropriate sample depths.

Atterberg Limit determinations were performed on 26 samples of the subsurface soils in accordance with the ASTM D4318 Test Procedure to determine the range of water contents over which the materials exhibited plasticity. The Atterberg Limits are used to classify the soils in accordance with the Unified Soil Classification System and to evaluate the soil's expansion potential. The results of these tests are presented on Drawings 27 through 29, and on the boring logs at the appropriate sample depths.

The percent soil fraction passing the #4 sieve and #200 sieves were determined on 56 samples of the subsurface soils in accordance with the ASTM D1140 Test Procedure to aid in the classification of the soils. The results of these tests are shown on the boring logs at the appropriate sample depths.

Free swell tests were performed on 56 samples of the soil materials to evaluate the swelling potential of the soil. The free swell tests were performed by slowly pouring 10 ml of air dried soil passing the No. 40 sieve into a 100 ml graduated cylinder filled with approximately 90 ml of distilled water. The suspension was stirred repeatedly to ensure thorough wetting of the soil specimen. The graduated cylinder was then filled with distilled water to the 100 ml mark and allowed to settle until equilibrium was reached (approximately 24 hours). The free swell volume of the soil was then noted. The percent free swell was calculated by subtracting the initial soil volume from the free swell volume, dividing the difference by the initial volume, and multiplying the result by 100 percent. The results of these tests are presented on the boring logs.

Three unconfined compression tests were performed in accordance with the ASTM D2166 Test Procedure on relatively undisturbed samples of the subsurface soils to evaluate the undrained shear strength of the materials. The unconfined tests were performed on samples having a diameter of 2.43 inches and a height-to-diameter ratio of at least two. Failure was taken at the peak normal stress or at five percent strain, whichever occurred first. The results of these tests are presented on the boring logs at the appropriate sample depths.

LABORATORY TESTING PROCEDURES CONTINUED

R-Value tests were performed by Cooper Testing Laboratory on representative samples of the subgrade soils from throughout the campus to provide data for the pavement design. The tests were performed in accordance with California Test Method 301-F on both untreated material and on material chemically-treated with 5% hi-calcium quicklime, and indicated R-Values of less than 5 and 69, respectively, at an exudation pressure of 300 pounds per square inch. The results of the tests are presented on Drawings 32 and 33.

Corrosion testing was performed by Cooper Testing Labs on a composite sample of the surficial soil materials from the upper three feet of the borings. Testing included resistivity, pH, chloride and sulfate testing performed in accordance with ASTM G57, ASTM G51, Caltrans 422 (modified) and Caltrans 417 (modified), respectively. The results of this test are presented on Drawing 34 and discussed in Section I. Soil Corrosivity.

EQUIPMENT	8" Diameter Hollow Stem Auger*	ELEVATION	---	LOGGED BY	CMc
DEPTH TO GROUNDWATER	Not Enc.	DEPTH TO BEDROCK	Not Enc.	DATE DRILLED	6/5/2018

DESCRIPTION AND CLASSIFICATION				DEPTH (FEET)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT)	WATER CONTENT (%)	DRY DENSITY (PCF)	SHEAR STRENGTH (KSF)
DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE						
Asphalt Parking Lot: 3" AC over 5" AB SANDY CLAY, moist, fine grained sand	Black	Stiff	CL	1					
@1.5': Liquid Limit = 37% Plasticity Index = 23% Finer Than #4 = 87% Finer Than #200 = 58% Free Swell = 95%				2		9	19 32	103 88	PP=2.5 TV=0.5
				3		13	30		
	Dark Grayish Brown	Very Stiff		4					
				5		19	28 25	96 99	PP=2.5
				6					
@6.5': occasional medium to coarse grained sand				7		19	22		
Bottom of Boring = 7.0'				8					
				9					
				10					
				11					
				12					
				13					
				14					
				15					
				16					
				17					
				18					
				19					
				20					

* Drilled with CME-75 Truck Mounted Rig
PP = Pocket Penetrometer
TV = Torvane Test

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL

CLEARY CONSULTANTS, INC.
Geotechnical Engineers and Geologists

LOG OF EXPLORATORY BORING NO. 1

VETERANS MEMORIAL SENIOR CENTER & YMCA COMPLEX
City of Redwood City
Redwood City, California

PROJECT NO.	DATE	DRAWING NO.
1398.1	August 2018	10

EQUIPMENT	8" Diameter Hollow Stem Auger*	ELEVATION	---	LOGGED BY	CMc
DEPTH TO GROUNDWATER	12.5'	DEPTH TO BEDROCK	±22.0'	DATE DRILLED	6/5/2018

DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE	DEPTH (FEET)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT)	WATER CONTENT (%)	DRY DENSITY (PCF)	SHEAR STRENGTH (KSF)
Irrigated Grass Landscaping									
SANDY CLAY, moist, fine to occasionally medium grained sand, fine rootlets	Dark Brown	Very Stiff	CL	1					
				2		20	23	82	
				3			14		
						22			
	Black	Hard		4					
@4.5': decreased organics Liquid Limit = 43% Plasticity Index = 22% Finer Than #4 = 99% Finer Than #200 = 73% Free Swell = 70%	Grayish Brown			5		49/11"	18 16	108 115	PP>4.5 TV=0.95
@6.0': Finer Than #4 = 98% Finer Than #200 = 84% Free Swell = 80%				6		48	18		
	Dark Brown to Grayish Brown			7					
				8					
				9			20	107	
@9.5': Finer Than #4 = 97% Finer Than #200 = 73% Free Swell = 60%				10		35	19	112	PP=4.25
				11					
GRAVELLY CLAYEY SAND, wet, fine to coarse grained sand	Grayish Brown	Medium Dense	SC	12			▼		
@14.0': Finer Than #4 = 77% Finer Than #200 = 33% Free Swell = 30%				13			▽		
				14			9	117	
SILTY CLAY, moist, fine grained sand	Grayish Brown	Very Stiff	CH	15		18	24	102	PP=3.0
@14.5': Liquid Limit = 58% Plasticity Index = 31% Finer Than #4 = 100% Finer Than #200 = 89% Free Swell = 95%				16					
				17					
@19.5': Finer Than #4 = 99% Finer Than #200 = 91% Free Swell = 65%	Yellowish Brown	Hard		18					
▼ Water level as encountered 0.50 hours after drilling									
▽ Water level as encountered during drilling				19			27	90	
* Drilled with CME-75 Truck Mounted Rig						40			
PP = Pocket Penetrometer				20			27	100	PP=4.0
TV = Torvane Test									

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL

CLEARY CONSULTANTS, INC.
Geotechnical Engineers and Geologists

LOG OF EXPLORATORY BORING NO. 2

VETERANS MEMORIAL SENIOR CENTER & YMCA COMPLEX
City of Redwood City
Redwood City, California

PROJECT NO.	DATE	DRAWING NO.
1398.1	August 2018	11

EQUIPMENT	8" Diameter Hollow Stem Auger*	ELEVATION	---	LOGGED BY	CMc
DEPTH TO GROUNDWATER	12.5'	DEPTH TO BEDROCK	±22.0'	DATE DRILLED	6/5/2018

DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE	DEPTH (FEET)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT)	WATER CONTENT (%)	DRY DENSITY (PCF)	SHEAR STRENGTH (KSF)
SILTY CLAY, moist, continued...	Yellowish Brown	Hard	CH	21					
CLAYEY SANDSTONE, slightly moist, fine to medium grained sand, intact (Franciscan Complex) @23.5': Finer Than #4 = 74% Finer Than #200 = 30% Free Swell = 50%	Greenish Gray	(Very Dense)	(SC)	22 23 24	⊠	30/2"	6		
	Dark Grayish Brown			25 26 27					
@28.5': coarse grained sand				28 29	⊠	30/3"	12		
Bottom of Boring = 30.0' (Practical Drilling Refusal)				30 31 32 33 34 35 36 37 38 39 40					

* Drilled with CME-75 Truck Mounted Rig

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL

CLEARY CONSULTANTS, INC.
Geotechnical Engineers and Geologists

LOG OF EXPLORATORY BORING NO. 2

VETERANS MEMORIAL SENIOR CENTER & YMCA COMPLEX
City of Redwood City
Redwood City, California

PROJECT NO.	DATE	DRAWING NO.
1398.1	August 2018	12

EQUIPMENT	8" Diameter Hollow Stem Auger*	ELEVATION	---	LOGGED BY	CMc
DEPTH TO GROUNDWATER	11.5'	DEPTH TO BEDROCK	17.0'	DATE DRILLED	6/6/2018

DESCRIPTION AND CLASSIFICATION				DEPTH (FEET)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT)	WATER CONTENT (%)	DRY DENSITY (PCF)	SHEAR STRENGTH (KSF)
DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE						
Irrigated Grass Landscaping CLAYEY GRAVELLY SAND, moist, fine to coarse grained sand, fine subangular to subrounded gravel @1.5': Finer Than #4 = 66% Finer Than #200 = 26% Free Swell = 20% Fill	Grayish Brown	Medium Dense	SC	1		29	11 5	101 93	
SILTY CLAY, moist, fine grained sand	Black	Very Stiff	CL	2 3		17	20		
@4.5': Liquid Limit = 54% Plasticity Index = 35% Finer Than #4 = 100% Finer Than #200 = 91% Free Swell = 90%	Grayish Brown			4 5		23	26 24	98 102	PP=4.5 TV=1.5
@6.0': ±3" thick lens of sandy silt	Black			6 7		17	25		
SANDY CLAY, moist, fine grained sand	Grayish Brown	Very Stiff	CL	8					
@9.5': Liquid Limit = 45% Plasticity Index = 29% Finer Than #4 = 100% Finer Than #200 = 68% Free Swell = 80%				9 10 11		28	21 18	103 108	PP=4.25 PP>4.5
GRAVELLY CLAYEY SAND, wet, fine to coarse grained sand, occasional fine subangular to subrounded gravel	Grayish Brown	Dense	SC	12 13					
@14.5': Finer Than #4 = 82% Finer Than #200 = 23% Free Swell = 20%				14 15		32	17 14	115 122	
GREENSTONE, moist, fine to occasionally medium grained sand, lightly foliated and serpentinized, intact (Franciscan Complex)	Grayish Brown	(Hard)	(CL)	16 17 18					
				19		36/6"	15	108	
				20					

▼ Water level as encountered 0.50 hours after drilling
▽ Water level as encountered during drilling
* Drilled with CME-75 Truck Mounted Rig
PP = Pocket Penetrometer
TV = Torvane Test

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL

LOG OF EXPLORATORY BORING NO. 3

VETERANS MEMORIAL SENIOR CENTER & YMCA COMPLEX
City of Redwood City
Redwood City, California

PROJECT NO.	DATE	DRAWING NO.
1398.1	August 2018	13

CLEARY CONSULTANTS, INC.
Geotechnical Engineers and Geologists

EQUIPMENT	8" Diameter Hollow Stem Auger*	ELEVATION	---	LOGGED BY	CMc
DEPTH TO GROUNDWATER	11.5'	DEPTH TO BEDROCK	17.0'	DATE DRILLED	6/6/2018

DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE	DEPTH (FEET)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT)	WATER CONTENT (%)	DRY DENSITY (PCF)	SHEAR STRENGTH (KSF)
GREENSTONE, moist, continued... (Franciscan Complex)	Grayish Brown	(Hard)	(CL)	21					
CLAYEY SANDSTONE, moist, fine to medium grained sand, intact (Franciscan Complex)	Dark Grayish Brown	(Very Dense)	(SC)	22 23 24	X	30/4"	13	125	
Bottom of Boring = 24.0'				25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40					

* Drilled with CME-75 Truck Mounted Rig

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL

CLEARY CONSULTANTS, INC.
Geotechnical Engineers and Geologists

LOG OF EXPLORATORY BORING NO. 3

VETERANS MEMORIAL SENIOR CENTER & YMCA COMPLEX
City of Redwood City
Redwood City, California

PROJECT NO.	DATE	DRAWING NO.
1398.1	August 2018	14

EQUIPMENT	8" Diameter Hollow Stem Auger*	ELEVATION	---	LOGGED BY	CMc
DEPTH TO GROUNDWATER	12.0'	DEPTH TO BEDROCK	±19.75'	DATE DRILLED	6/5/2018

DESCRIPTION AND CLASSIFICATION				DEPTH (FEET)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT)	WATER CONTENT (%)	DRY DENSITY (PCF)	SHEAR STRENGTH (KSF)
DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE						
Irrigated Grass Landscaping SANDY CLAY, moist, fine grained sand, rootlets	Black	Very Stiff	CH	1			14	107	
@1.5': Liquid Limit = 57% Plasticity Index = 34% Finer Than #4 = 95% Finer Than #200 = 86% Free Swell = 90%				2		20	20	90	PP>4.5 TV=1.0
		Stiff		3		10	26		
		Very Stiff		4			27	93	
				5		18	25	96	PP=3.25 **3.55ksf @5%strain
	Yellowish Brown	Stiff	CL	6		13	22		
@6.0': medium grained sand Finer Than #4 = 99% Finer Than #200 = 80% Free Swell = 30%	Dark Brown			7					
	Yellowish Brown	Very Stiff		8					
@9.0': decreased medium grained sand Liquid Limit = 44% Plasticity Index = 28% Finer Than #4 = 99% Finer Than #200 = 79% Free Swell = 80%				9		29	18	109	PP=4.5
				10			17	110	PP>4.5
@9.5': Finer Than #4 = 100% Finer Than #200 = 68% Free Swell = 70%				11					
CLAYEY GRAVELLY SAND, moist, fine to coarse grained sand, fine subangular to subrounded gravel	Yellowish Brown	Medium Dense	SC	12			▼		
@14.0': Finer Than #4 = 57% Finer Than #200 = 12% Free Swell = 30%				13					
SANDY CLAY, moist, fine to medium grained sand	Yellowish Brown	Stiff	CL	14			▽ 11	125	
@14.5': Finer Than #4 = 99% Finer Than #200 = 59% Free Swell = 40%				15		13	20	111	PP=2.0
@19.5': Finer Than #4 = 99% Finer Than #200 = 85% Free Swell = 35%				16					
SANDSTONE, moist, weathered, friable, fine to medium grained sand				17					
(Franciscan Complex)		Hard		18					
▼ Water level as encountered 0.50 hours after drilling ▽ Water level as encountered during drilling * Drilled with CME-75 Truck Mounted Rig ** Unconfined Compressive Strength PP = Pocket Penetrometer TV = Torvane Test Bottom of Boring = 20.0'	Grayish Brown	(Dense)	(SP)	19		42	15	120	
				20			14	122	

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL

CLEARY CONSULTANTS, INC.
Geotechnical Engineers and Geologists

LOG OF EXPLORATORY BORING NO. 4

VETERANS MEMORIAL SENIOR CENTER & YMCA COMPLEX
City of Redwood City
Redwood City, California

PROJECT NO.	DATE	DRAWING NO.
1398.1	August 2018	15

EQUIPMENT	8" Diameter Hollow Stem Auger*	ELEVATION	---	LOGGED BY	CMc
DEPTH TO GROUNDWATER	10.0'	DEPTH TO BEDROCK	±19.75'	DATE DRILLED	6/6/2018

DESCRIPTION AND CLASSIFICATION				DEPTH (FEET)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT)	WATER CONTENT (%)	DRY DENSITY (PCF)	SHEAR STRENGTH (KSF)
DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE						
Irrigated Grass Landscaping SILTY CLAY, moist, fine grained sand, roots @1.5': Liquid Limit = 63% Plasticity Index = 41% Finer Than #4 = 100% Finer Than #200 = 93% Free Swell = 100% @3.0': Finer Than #4 = 100% Finer Than #200 = 93% Free Swell = 110% @4.5': silty sand lense	Black Yellowish Brown Dark Brown	Very Stiff Stiff Very Stiff	CH	1 2 3 4 5 6 7		23 12 26 29	15 21 21 21 15	99 99 101	PP>4.5 TV=2.0
SANDY CLAY, moist, fine grained sand @9.0': Finer Than #4 = 99% Finer Than #200 = 70% Free Swell = 70%	Grayish Brown	Hard	CL	8 9					
CLAYEY SAND, moist, fine to coarse grained sand, occasional fine subangular to subrounded gravel @9.5': Finer Than #4 = 92% Finer Than #200 = 35% Free Swell = 45% @14.5': Finer Than #4 = 99% Finer Than #200 = 27% Free Swell = 25% @19.0': Finer Than #4 = 91% Finer Than #200 = 34% Free Swell = 30%	Dark Yellowish Brown	Dense Medium Dense	SC	10 11 12 13 14 15		38 25	17 13 20 18	114 121 107 116	PP=4.25
SANDY CLAYSTONE, moist, fine to occasionally coarse grained sand, weathered (Franciscan Complex) @19.5': Liquid Limit = 44% Plasticity Index = 29% Finer Than #4 = 96% Finer Than #200 = 70% Free Swell = 80%	Grayish Brown	(Very Stiff)	(CL)	16 17 18 19 20		26	21 23	108 106	

▼ Water level as encountered 0.50 hours after drilling

▽ Water level as encountered during drilling

* Drilled with CME-75 Truck Mounted Rig

PP = Pocket Penetrometer

TV = Torvane Test

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL

LOG OF EXPLORATORY BORING NO. 5

VETERANS MEMORIAL SENIOR CENTER & YMCA COMPLEX
City of Redwood City
Redwood City, California

CLEARY CONSULTANTS, INC.
Geotechnical Engineers and Geologists

PROJECT NO.	DATE	DRAWING NO.
1398.1	August 2018	16

EQUIPMENT	8" Diameter Hollow Stem Auger*	ELEVATION	---	LOGGED BY	CMc
DEPTH TO GROUNDWATER	10.0'	DEPTH TO BEDROCK	±19.75'	DATE DRILLED	6/6/2018

DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE	DEPTH (FEET)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT)	WATER CONTENT (%)	DRY DENSITY (PCF)	SHEAR STRENGTH (KSF)
SANDY CLAYSTONE, moist, continued... (Franciscan Complex)	Grayish Brown	(Very Stiff)	(CL)	21					
GREENSTONE, moist, fine to medium grained sand, intact, serpentinized, lightly foliated (Franciscan Complex)	Greenish Gray	(Very Dense)	(SC)	22					
				23					
				24		52			
				25			16	110	
				26					
	Grayish Brown	(Dense)		27					
				28					
@29.0': sheared, foliated				29		37	24	107	
				30			17	111	
				31					
	Dark Grayish Brown			32					
				33					
@34.0': serpentinite vein				34		50	23	110	
				35			11	126	
Bottom of Boring = 35.5' (Practical Drilling Refusal)				36					
				37					
				38					
				39					
* Drilled with CME-75 Truck Mounted Rig				40					

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL

CLEARY CONSULTANTS, INC.
Geotechnical Engineers and Geologists

LOG OF EXPLORATORY BORING NO. 5

VETERANS MEMORIAL SENIOR CENTER & YMCA COMPLEX
City of Redwood City
Redwood City, California

PROJECT NO.	DATE	DRAWING NO.
1398.1	August 2018	17

EQUIPMENT	8" Diameter Hollow Stem Auger*	ELEVATION	---	LOGGED BY	CMc
DEPTH TO GROUNDWATER	9.75'	DEPTH TO BEDROCK	±22.0'	DATE DRILLED	6/6/2018

DESCRIPTION AND CLASSIFICATION				DEPTH (FEET)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT)	WATER CONTENT (%)	DRY DENSITY (PCF)	SHEAR STRENGTH (KSF)
DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE						
Asphalt Parking Lot: 2" AC over 11" AB SANDY CLAY, moist, fine grained sand	Black	Stiff	CH-MH	1					
				2		10	28 28	94 92	PP=2.25 TV=0.9
@3.5': Liquid Limit = 59% Plasticity Index = 29% Finer Than #4 = 99% Finer Than #200 = 86% Free Swell = 120%				3		15	27		
	Yellowish Brown	Very Stiff	CL	4					
@5.0': medium grained sand Finer Than #4 = 100% Finer Than #200 = 60% Free Swell = 45%				5		17	22 21	96 104	
	Dark Brown			6					
@6.5': Liquid Limit = 46% Plasticity Index = 29% Finer Than #4 = 100% Finer Than #200 = 88% Free Swell = 90%				7		28	19		
	Dark Yellowish Brown			8					
				9			20	107	PP=4.0
@9.5': Finer Than #4 = 100% Finer Than #200 = 68% Free Swell = 65%	Yellowish Brown			10		26	17	111	▼
				11					
SILTY SAND, moist, fine to coarse grained sand	Yellowish Brown	Medium Dense	SM	12					
				13					
				14		22	17	118	
@14.5': Liquid Limit = Non-Plastic Plasticity Index = Non-Plastic Finer Than #4 = 98% Finer Than #200 = 35% Free Swell = 30%				15			19	109	▽
				16					
SANDY CLAY, moist, fine to occasionally medium grained sand	Yellowish Brown	Very Stiff	CL	17					
@19.5': Finer Than #4 = 96% Finer Than #200 = 72% Free Swell = 90%				18					
				19		26	14 19	120 109	
				20					

▼ Water level as encountered 0.50 hours after drilling
▽ Water level as encountered during drilling
* Drilled with CME-75 Truck Mounted Rig
PP = Pocket Penetrometer
TV = Torvane Test

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL

CLEARY CONSULTANTS, INC.
Geotechnical Engineers and Geologists

LOG OF EXPLORATORY BORING NO. 6

VETERANS MEMORIAL SENIOR CENTER & YMCA COMPLEX
City of Redwood City
Redwood City, California

PROJECT NO.	DATE	DRAWING NO.
1398.1	August 2018	18

EQUIPMENT	8" Diameter Hollow Stem Auger*	ELEVATION	---	LOGGED BY	CMc
DEPTH TO GROUNDWATER	9.75'	DEPTH TO BEDROCK	±22.0'	DATE DRILLED	6/6/2018

DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE	DEPTH (FEET)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT)	WATER CONTENT (%)	DRY DENSITY (PCF)	SHEAR STRENGTH (KSF)
SANDY CLAY, moist, continued...	Yellowish Brown	Very Stiff	CL	21					
CLAYEY SANDSTONE, moist, fine to coarse grained sand, weathered, friable (Franciscan Complex)	Yellowish Brown	(Dense)	(SC)	22 23 24		35	16 18	108 111	
Bottom of Boring = 25.0'				25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40					

* Drilled with CME-75 Truck Mounted Rig

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL

CLEARY CONSULTANTS, INC.
Geotechnical Engineers and Geologists

LOG OF EXPLORATORY BORING NO. 6

VETERANS MEMORIAL SENIOR CENTER YMCA COMPLEX
City of Redwood City
Redwood City, California

PROJECT NO.	DATE	DRAWING NO.
1398.1	August 2018	19

EQUIPMENT	8" Diameter Hollow Stem Auger*	ELEVATION	---	LOGGED BY	CMc
DEPTH TO GROUNDWATER	11.0'	DEPTH TO BEDROCK	Not Enc.	DATE DRILLED	6/5/2018

DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE	DEPTH (FEET)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT)	WATER CONTENT (%)	DRY DENSITY (PCF)	SHEAR STRENGTH (KSF)
Irrigated Grass Landscaping	Black	Stiff	CH	1					
SANDY CLAY, moist, fine grained sand, fine rootlets						10	32	80	PP>4.5 TV=0.2
@1.5': Liquid Limit = 64% Plasticity Index = 34% Finer Than #4 = 98% Finer Than #200 = 70% Free Swell = 90%				2					
				3		11	27		
				4			27	90	
				5		15	26	96	PP=3.5
		Very Stiff		6		22	20		
@6.0': Finer Than #4 = 99% Finer Than #200 = 79% Free Swell = 110%				7					
	Yellowish Brown			8					
			CL	9			20	106	PP=3.5
@9.5': medium grained sand Finer Than #4 = 100% Finer Than #200 = 82% Free Swell = 50%				10		25	19	109	PP=4.5
				11					▼
		Hard		12					
@14.0': coarse grained sand				13					
GRAVELLY CLAYEY SAND, wet, fine to coarse grained sand, fine subangular to subrounded gravel	Dark Yellowish Brown	Dense	SC	14		33	15	118	▼
@14.5': Finer Than #4 = 86% Finer Than #200 = 18% Free Swell = 60%				15			18	114	
SILTY CLAY, moist, fine grained sand, mottled discoloration	Yellowish Brown to Grayish Brown	Very Stiff	CL	16					
@19.5': Finer Than #4 = 100% Finer Than #200 = 96% Free Swell = 40%				17					
▼ Water level as encountered 0.50 hours after drilling				18					
▼ Water level as encountered during drilling				19		19	27	93	
* Drilled with CME-75 Truck Mounted Rig PP = Pocket Penetrometer TV = Torvane Test Bottom of Boring = 20.0'				20			27	96	PP=2.25

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL

CLEARY CONSULTANTS, INC.
Geotechnical Engineers and Geologists

LOG OF EXPLORATORY BORING NO. 7

VETERANS MEMORIAL SENIOR CENTER & YMCA COMPLEX
City of Redwood City
Redwood City, California

PROJECT NO.	DATE	DRAWING NO.
1398.1	August 2018	20

EQUIPMENT	8" Diameter Hollow Stem Auger*	ELEVATION	---	LOGGED BY	CMc
DEPTH TO GROUNDWATER	9.5'	DEPTH TO BEDROCK	±27.0'	DATE DRILLED	6/7/2018

DESCRIPTION AND CLASSIFICATION				DEPTH (FEET)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT)	WATER CONTENT (%)	DRY DENSITY (PCF)	SHEAR STRENGTH (KSF)
DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE						
Irrigated Grass Landscaping	Black	Stiff	CH	1					
SILTY CLAY, moist, fine grained sand, fine rootlets									
@1.5': Liquid Limit = 67% Plasticity Index = 44% Finer Than #4 = 100% Finer Than #200 = 93% Free Swell = 130%				2		16	23 23	93 96	PP>4.5 TV=2.0
@3.0': decreased organics Liquid Limit = 49% Plasticity Index = 26% Finer Than #4 = 100% Finer Than #200 = 90% Free Swell = 70%	Grayish Brown	Very Stiff	CL	3 4		16 22	26 20 21 20	97 103	PP>4.5 TV=0.75 PP=4.5 **2.81ksf@ 4.75%strain
SANDY CLAY, moist, fine to medium grained sand	Yellowish Brown	Stiff	CL	5					
@5.5': Liquid Limit = 32% Plasticity Index = 11% Finer Than #4 = 95% Finer Than #200 = 72% Free Swell = 50%	Dark Brown			6		16	20 17		
@6.0': Liquid Limit = 41% Plasticity Index = 24% Finer Than #4 = 99% Finer Than #200 = 75% Free Swell = 70%			SC	7 8					
CLAYEY GRAVELLY SAND, moist, fine to coarse grained sand, fine subangular to subrounded gravel	Dark Yellowish Brown	Medium Dense		9		18	12	117	▼
@9.5': Finer Than #4 = 78% Finer Than #200 = 19% Free Swell = 40%				10 11 12 13			11	126	
@14.5': Finer Than #4 = 75% Finer Than #200 = 20% Free Swell = 40%				14 15 16		26	15 16	113 117	
CLAYEY SAND, moist, fine to medium grained sand	Yellowish Brown	Medium Dense	SC	17					
@19.5': Finer Than #4 = 100% Finer Than #200 = 42% Free Swell = 20%				18 19		19	26 22	96 100	

▼ Water level as encountered 0.50 hours after drilling
* Drilled with CME-75 Truck Mounted Rig
** Unconfined Compressive Strength
PP = Pocket Penetrometer
TV = Torvane Test

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL

LOG OF EXPLORATORY BORING NO. 8

VETERANS MEMORIAL SENIOR CENTER & YMCA COMPLEX
City of Redwood City
Redwood City, California

CLEARY CONSULTANTS, INC.
Geotechnical Engineers and Geologists

PROJECT NO.	DATE	DRAWING NO.
1398.1	August 2018	21

EQUIPMENT	8" Diameter Hollow Stem Auger*	ELEVATION	---	LOGGED BY	CMc
DEPTH TO GROUNDWATER	9.5'	DEPTH TO BEDROCK	±27.0'	DATE DRILLED	6/7/2018

DESCRIPTION AND CLASSIFICATION				DEPTH (FEET)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT)	WATER CONTENT (%)	DRY DENSITY (PCF)	SHEAR STRENGTH (KSF)
DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE						
CLAYEY SAND, moist, continued...	Yellowish Brown	Medium Dense	SC	21			▽		
SANDY CLAY, moist, fine to occasionally medium grained sand	Yellowish Brown	Very Stiff	CH	22					
				23					
				24			22	111	
@24.5': Liquid Limit = 54% Plasticity Index = 33% Finer Than #4 = 100% Finer Than #200 = 82% Free Swell = 90%				25		20	23	102	PP=3.5
				26					
CLAYEY SILTSTONE, moist, fine to occasionally grained sand, weathered, lightly foliated/sheared (Franciscan Complex)	Grayish Brown	(Hard)	(ML)	27					
				28					
				29			19	105	
@29.5': Liquid Limit = 48% Plasticity Index = 18% Finer Than #4 = 99% Finer Than #200 = 91% Free Swell = 80%				30		34	18	110	
				31					
GREENSTONE, moist, fine to medium grained sand, intact, fine gravel sized sandstone inclusions, sheared (Franciscan Complex)	Dark Gray	(Hard)	(CL)	32					
				33					
				34			22	104	
				35		39	19	110	
				36					
	Greenish Gray			37					
@39.0': foliated, serpentinized, reddish oxidation staining				38					
▽ Water level as encountered during drilling * Drilled with CME-75 Truck Mounted Rig PP = Pocket Penetrometer				39		47/10"	23	97	
							16	110	
				40					

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL

CLEARY CONSULTANTS, INC.
Geotechnical Engineers and Geologists

LOG OF EXPLORATORY BORING NO. 8

VETERANS MEMORIAL SENIOR CENTER & YMCA COMPLEX
City of Redwood City
Redwood City, California

PROJECT NO.	DATE	DRAWING NO.
1398.1	August 2018	22

EQUIPMENT	8" Diameter Hollow Stem Auger*	ELEVATION	---	LOGGED BY	CMc
DEPTH TO GROUNDWATER	9.5'	DEPTH TO BEDROCK	±27.0'	DATE DRILLED	6/7/2018

DESCRIPTION AND CLASSIFICATION				DEPTH (FEET)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT)	WATER CONTENT (%)	DRY DENSITY (PCF)	SHEAR STRENGTH (KSF)
DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE						
GREENSTONE, moist, continued	Dark Greenish Gray	(Hard)	(CL)	41					
(Franciscan Complex)	Greenish Gray			42					
				43					
				44		46	20	113	
				45					
				46					
	Dark Gray			47					
				48					
				49		52/11"	18	108	
							10	124	
Bottom of Boring = 49.5'				50					
				51					
				52					
				53					
				54					
				55					
				56					
				57					
				58					
				59					
				60					

* Drilled with CME-75 Truck Mounted Rig

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL

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Geotechnical Engineers and Geologists

LOG OF EXPLORATORY BORING NO. 8

VETERANS MEMORIAL SENIOR CENTER & YMCA COMPLEX
City of Redwood City
Redwood City, California

PROJECT NO.	DATE	DRAWING NO.
1398.1	August 2018	23

EQUIPMENT	4" Diameter Hand Auger	ELEVATION	---	LOGGED BY	CMc
DEPTH TO GROUNDWATER	Not Enc.	DEPTH TO BEDROCK	Not Enc.	DATE DRILLED	6/7/2018

DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE	DEPTH (FEET)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT)	WATER CONTENT (%)	DRY DENSITY (PCF)	SHEAR STRENGTH (KSF)
Irrigated Grass Landscaping									
CLAYEY SAND, moist, fine to medium grained sand (Fill)	Dark Brown		SC	1	X		35		
SANDY CLAY, moist, fine grained sand	Black		CH		X		27		
@1.0': Liquid Limit = 64% Plasticity Index = 41% Finer Than #4 = 98% Finer Than #200 = 84% Free Swell = 110%				2	X		33		
				3					
SILTY CLAY, moist, fine grained sand	Black		CH		X		28		
@3.5': Liquid Limit = 58% Plasticity Index = 37% Finer Than #4 = 100% Finer Than #200 = 95% Free Swell = 120%	Grayish Brown			4					
				5	X		23		
Bottom of Boring = 5.0'				6					
				7					
				8					
				9					
				10					
				11					
				12					
				13					
				14					
				15					
				16					
				17					
				18					
				19					
				20					

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL

LOG OF EXPLORATORY BORING NO. 9

VETERANS MEMORIAL SENIOR CENTER & YMCA COMPLEX
City of Redwood City
Redwood City, California

CLEARY CONSULTANTS, INC.
Geotechnical Engineers and Geologists

PROJECT NO.	DATE	DRAWING NO.
1398.1	August 2018	24

EQUIPMENT	8" Diameter Hollow Stem Auger*	ELEVATION	---	LOGGED BY	CMc
DEPTH TO GROUNDWATER	10.0'	DEPTH TO BEDROCK	±32.0'	DATE DRILLED	6/7/2018

DESCRIPTION AND CLASSIFICATION				DEPTH (FEET)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT)	WATER CONTENT (%)	DRY DENSITY (PCF)	SHEAR STRENGTH (KSF)
DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE						
Irrigated Grass Landscaping CLAYEY SAND, slightly moist, fine to medium grained sand @1.5': Liquid Limit = 28% Plasticity Index = 12% Finer Than #4 = 100% Finer Than #200 = 36% Free Swell = 45%	Grayish Brown	Medium Dense	SC	1		16	6 7	85 99	PP>4.5
Fill		Stiff	CH	2					
SILTY CLAY, moist, fine grained sand	Black			3		14	25		
		Very Stiff		4			27	93	
@4.5': Liquid Limit = 70% Plasticity Index = 46% Finer Than #4 = 100% Finer Than #200 = 95% Free Swell = 140%						20	28	92	PP=3.5 TV=1.25 **3.15ksf@ 3.25%strain
		Stiff		5					
SANDY CLAY, moist, fine to medium grained sand @6.0': Finer Than #4 = 100% Finer Than #200 = 51% Free Swell = 50%	Yellowish Brown	Stiff	CH	6		13	18 17		
	Brown	Very Stiff		7					
				8					
				9			22	103	
@9.5': Liquid Limit = 52% Plasticity Index = 34% Finer Than #4 = 96% Finer Than #200 = 83% Free Swell = 100%				10		20	21	105	PP=3.25
				11					
CLAYEY SAND, moist, fine to coarse grained sand, fine subangular to subrounded gravel	Grayish Brown	Medium Dense	SC	12					
				13					
				14		19	19	110	
@14.5': Finer Than #4 = 98% Finer Than #200 = 39% Free Swell = 40%				15			17	116	
				16					
SANDY CLAY, very moist, fine to medium grained sand @19.5': Liquid Limit = 34% Plasticity Index = 17% Finer Than #4 = 100% Finer Than #200 = 69% Free Swell = 65%	Yellowish Brown	Stiff	CL	17					
				18					
				19		16	22	104	
				20			20	106	PP=2.75

▼ Water level as encountered 0.50 hours after drilling
* Drilled with CME-75 Truck Mounted Rig
** Unconfined Compressive Strength
PP = Pocket Penetrometer
TV = Torvane Test

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL

LOG OF EXPLORATORY BORING NO. 10

VETERANS MEMORIAL SENIOR CENTER & YMCA COMPLEX
City of Redwood City
Redwood City, California

CLEARY CONSULTANTS, INC.
Geotechnical Engineers and Geologists

PROJECT NO.	DATE	DRAWING NO.
1398.1	August 2018	25

EQUIPMENT	8" Diameter Hollow Stem Auger*	ELEVATION	---	LOGGED BY	CMc
DEPTH TO GROUNDWATER	10.0'	DEPTH TO BEDROCK	±32.0'	DATE DRILLED	6/7/2018

DESCRIPTION AND CLASSIFICATION				DEPTH (FEET)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT)	WATER CONTENT (%)	DRY DENSITY (PCF)	SHEAR STRENGTH (KSF)
DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE						
SANDY CLAY, moist, continued...	Yellowish Brown	Stiff	CL	21			▽		
GRAVELLY SAND, wet, fine occasionally coarse grained sand	Yellowish Brown	Dense	SP	22					
@24.5': Finer Than #4 = 80% Finer Than #200 = 9% Free Swell = 20%				23 24 25		37	19 11	108 115	
CLAYEY SAND, moist, fine to medium grained sand	Yellowish Brown	Dense	SC	26 27 28					
@29.5': Liquid Limit = 30% Plasticity Index = 10% Finer Than #4 = 100% Finer Than #200 = 33% Free Swell = 40%				29 30 31		46	18 17	110 111	
SANDY CLAYSTONE, moist, fine to occasionally coarse grained sand, weathered (Franciscan Complex)	Yellowish Brown	(Very Stiff)	(CL)	32 33 34 35		27	21 19	102 109	
		(Hard)		36 37	⊠	30/1"			
Bottom of Boring = 37.0' (Practical Drilling Refusal)				38 39 40					

▽ Water level as encountered during drilling
* Drilled with CME-75 Truck Mounted Rig

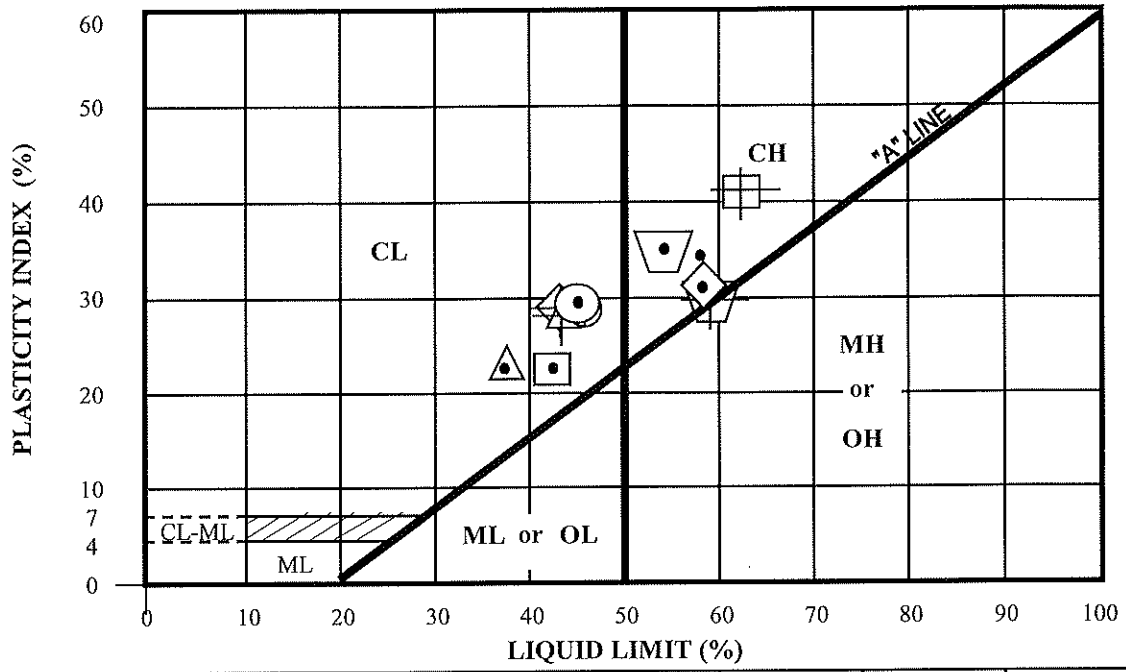
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL

CLEARY CONSULTANTS, INC.
Geotechnical Engineers and Geologists

LOG OF EXPLORATORY BORING NO. 10

VETERANS MEMORIAL SENIOR CENTER & YMCA COMPLEX
City of Redwood City
Redwood City, California

PROJECT NO.	DATE	DRAWING NO.
1398.1	August 2018	26



KEY SYMBOL	BORING NO.	SAMPLE DEPTH (feet)	NATURAL WATER CONTENT %	LIQUID LIMIT %	PLASTICITY INDEX %	PASSING NO. 200 SIEVE %	LIQUIDITY INDEX	UNIFIED SOIL CLASSIFICATION SYMBOL
△	1	1.5	19	37	23	58	0.2	CL
⊡	2	4.5	16	43	22	73	-0.2	CL
◇	2	14.5	24	58	31	89	-0.1	CH
▽	3	4.5	24	54	35	91	0.1	CH
⊙	3	9.5	18	45	29	68	0.1	CL
•	4	1.5	20	57	34	86	-0.1	CH
⋔	4	9.0	17	44	28	79	0.0	CL
⊞	5	1.5	21	63	41	93	0.0	CH
◈	5	19.5	23	44	29	70	0.3	(CL)
⏢	6	3.5	27	59	29	86	-0.1	CH - MH
⊕	6	6.5	19	46	29	88	0.1	CL
+	6	14.5	19	0	0	35	---	*SM

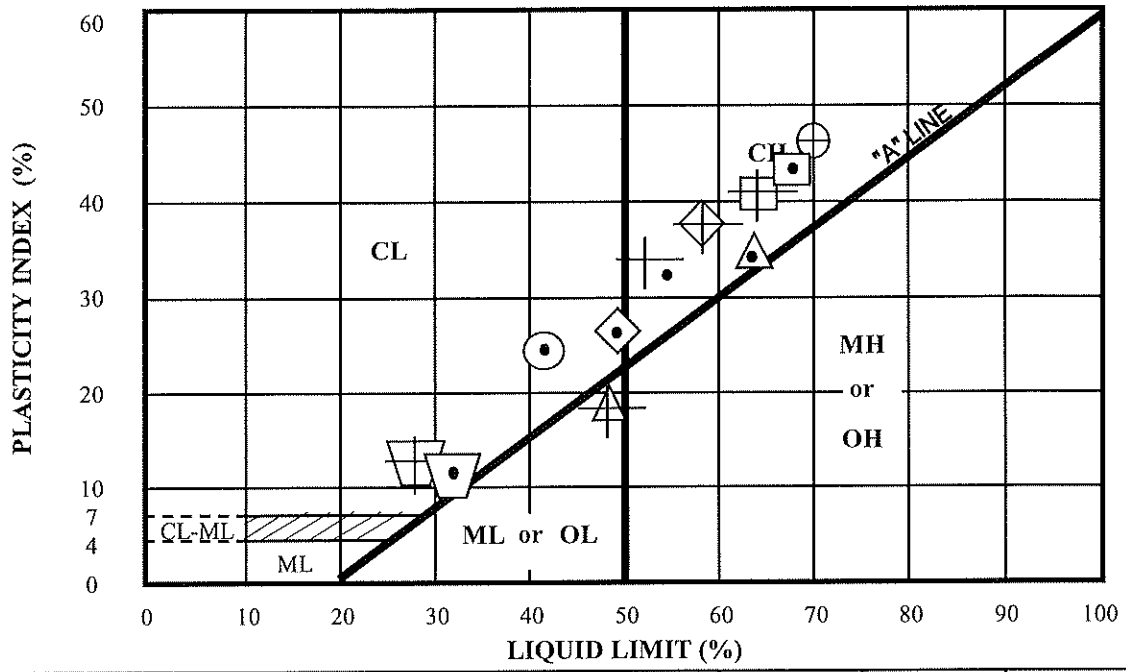
*Classified as coarse-grained soil since less than 50% passes #200 sieve

CLEARY CONSULTANTS, INC.
Geotechnical Engineers and Geologists

PLASTICITY CHART

VETERANS MEMORIAL SENIOR CENTER & YMCA COMPLEX
City of Redwood City
Redwood City, California

PROJECT NO.	DATE	DRAWING NO.
1398.1	August 2018	27



KEY SYMBOL	BORING NO.	SAMPLE DEPTH (feet)	NATURAL WATER CONTENT %	LIQUID LIMIT %	PLASTICITY INDEX %	PASSING NO. 200 SIEVE %	LIQUIDITY INDEX	UNIFIED SOIL CLASSIFICATION SYMBOL
△	7	1.5	32	64	34	70	0.1	CH
⊡	8	1.5	23	67	44	93	0.0	CH
◇	8	3.0	20	49	26	90	-0.1	CL
▽	8	5.5	20	32	11	72	-0.1	CL
⊙	8	6.0	17	41	24	75	0.0	CL
•	8	24.5	23	54	33	82	0.1	CH
⋔	8	29.5	18	48	18	91	-0.7	(ML)
⊞	9	1.0	27	64	41	84	0.1	CH
◈	9	3.5	28	58	37	95	0.2	CH
⧈	10	1.5	7	28	12	36	-0.8	SC*
⊕	10	4.5	28	70	46	95	0.1	CL
+	10	9.5	21	52	34	83	0.1	CH

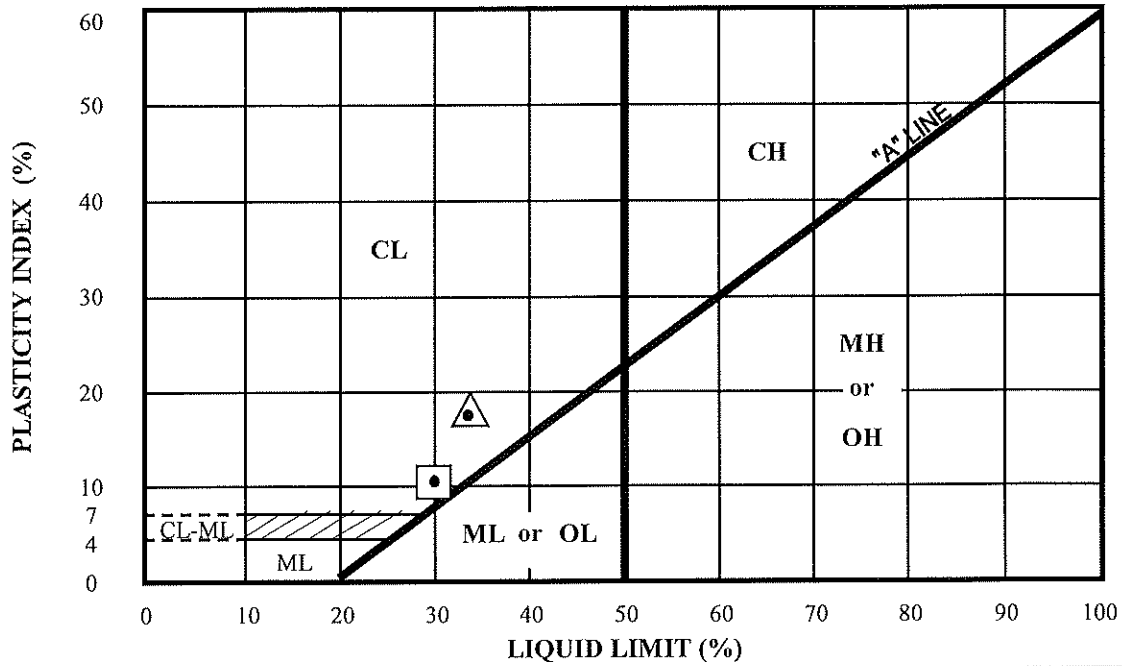
*Classified as coarse-grained soil since less than 50% passes #200 sieve

CLEARY CONSULTANTS, INC.
Geotechnical Engineers and Geologists

PLASTICITY CHART

VETERANS MEMORIAL SENIOR CENTER & YMCA COMPLEX
City of Redwood City
Redwood City, California

PROJECT NO.	DATE	DRAWING NO.
1398.1	August 2018	28



KEY SYMBOL	BORING NO.	SAMPLE DEPTH (feet)	NATURAL WATER CONTENT %	LIQUID LIMIT %	PLASTICITY INDEX %	PASSING NO. 200 SIEVE %	LIQUIDITY INDEX	UNIFIED SOIL CLASSIFICATION SYMBOL
△	10	19.5	20	34	17	69	0.2	CL
⊡	10	29.5	17	30	10	33	-0.3	SC*

*Classified as coarse-grained soil since less than 50% passes #200 sieve

CLEARY CONSULTANTS, INC.
Geotechnical Engineers and Geologists

PLASTICITY CHART

VETERANS MEMORIAL SENIOR CENTER & YMCA COMPLEX
City of Redwood City
Redwood City, California

PROJECT NO.	DATE	DRAWING NO.
1398.1	August 2018	29

Period (T) (Seconds)	Probabilistic (MCE_R) Analysis (Cr x 2% in 50yr-max rotated component 5% damping) (g)	Deterministic (MCE) Analysis-maximum rotated component (g)	Deterministic Analysis (Lower Limit)* (g)	Selected MCE_R Site-Specific Spectral Response (g)	Site-Specific Design Spectral Response (2/3) (g)	Code Based Design (g)	Code Based Design (@80%) (g)	Procedural Design Values (g)
0.0500	1.2908	1.3420	0.9750	1.2908	0.8610	0.7709	0.6167	0.8610
0.1000	1.8508	1.8180	1.3500	1.8180	1.2126	1.0399	0.8319	1.2126
0.2000	2.2843	2.3080	1.5000	2.2843	1.5236	1.2550	1.0040	1.5236
0.3000	2.2562	2.3520	1.5000	2.2562	1.5049	1.2550	1.0040	1.5049
0.4000	2.1540	2.3270	1.5000	2.1540	1.4367	1.2550	1.0040	1.4367
0.5000	2.0699	2.2330	1.5000	2.0699	1.3806	1.2550	1.0040	1.3806
0.7500	1.8168	1.8670	1.2000	1.8168	1.2118	1.1707	0.9365	1.2118
1.0000	1.5048	1.4940	0.9000	1.4940	0.9965	0.8780	0.7024	0.9965
2.0000	0.9059	0.9291	0.4500	0.9059	0.6042	0.4390	0.3512	0.6042
3.0000	0.6469	0.6955	0.3000	0.6469	0.4315	0.2927	0.2341	0.4315
4.0000	0.4920	0.5349	0.2250	0.4920	0.3282	0.2195	0.1756	0.3282

Site Latitude: 37.4724N

Site Longitude: 122.2391W

Site Classification: D

* Values calculated using ASCE 7-10; Figure 21.2-1 with Fa = 1.0 and Fv = 1.5

Procedure

1) Use greater of Deterministic (MCE_R) Analysis and Lower Limit.

2) Use lesser of #1 and Probabilistic Analysis.

3) Multiply #2 by 2/3 to get Design Response Spectra.

Check:

4) Design Spectra can't be less than 80% of Code Based Design.

5) $SD_{S\ (0.2\ sec)\ must\ be\ at\ least}$ 90% peak spectral acceleration at period larger than 0.2 sec.

6) SD_1: 2x Sa at 2.0 sec > Sa at 1.0 sec

7) Verify SM_S and SM_1 not less than 80% of Code Based SM_S and SM_1. **Yes**

DESIGN VALUES
SM_S= 2.29
SM_1= 1.81
SD_S= 1.52
SD_1= 1.21

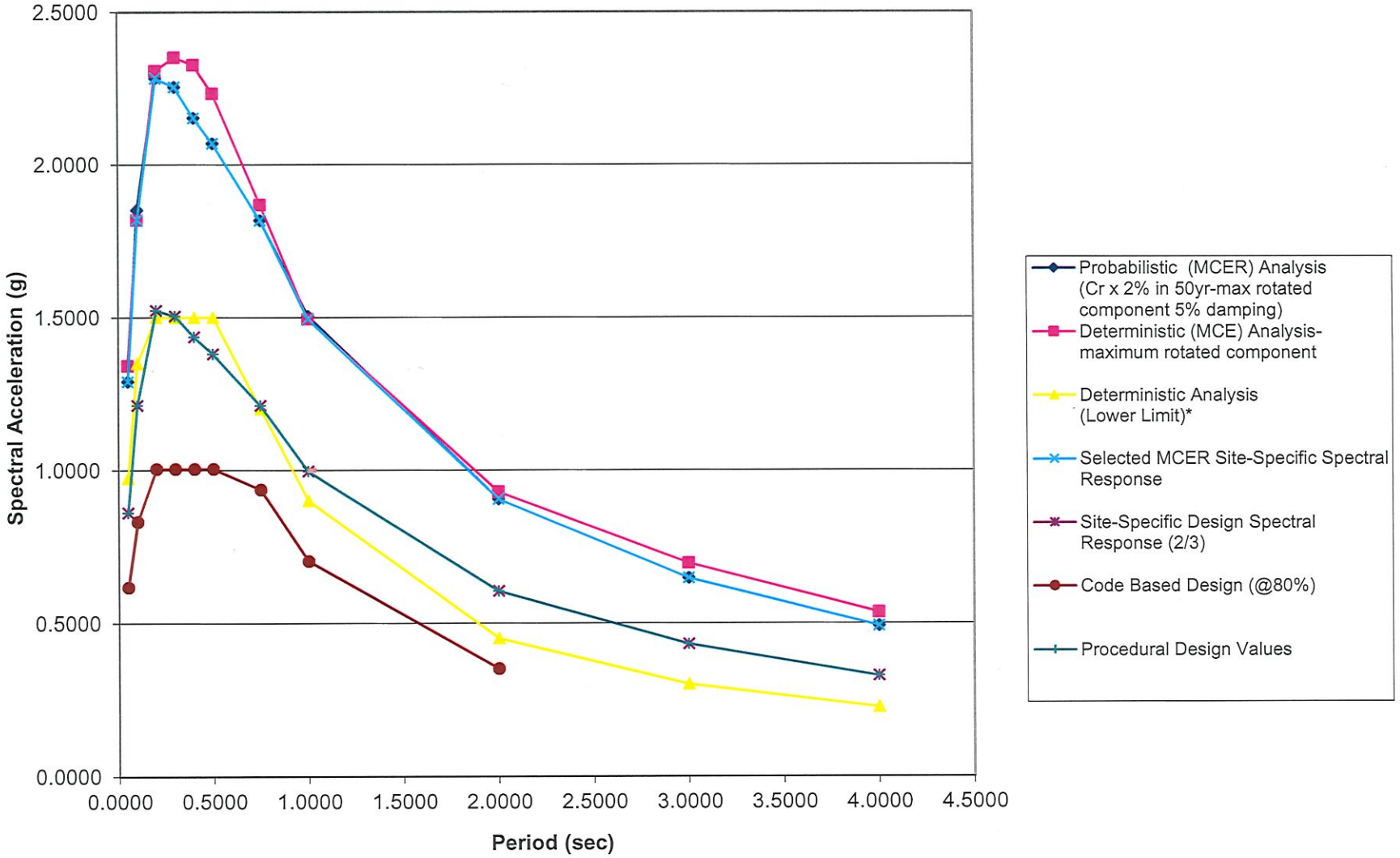
CLEARY CONSULTANTS, INC.
Geotechnical Engineers and Geologists

SITE SPECIFIC GROUND MOTION SPECTRA TABLE

VETERANS MEMORIAL SENIOR CENTER & YMCA COMPLEX
City of Redwood City
Redwood City, California

PROJECT NO.	DATE	DRAWING NO.
1398.1	July 2018	30

Site Specific Ground Motion Spectra Graph:
Veterans Memorial Senior Center & YMCA Complex, Redwood City, CA



DRAWING NO. 31

COOPER TESTING LABORATORY

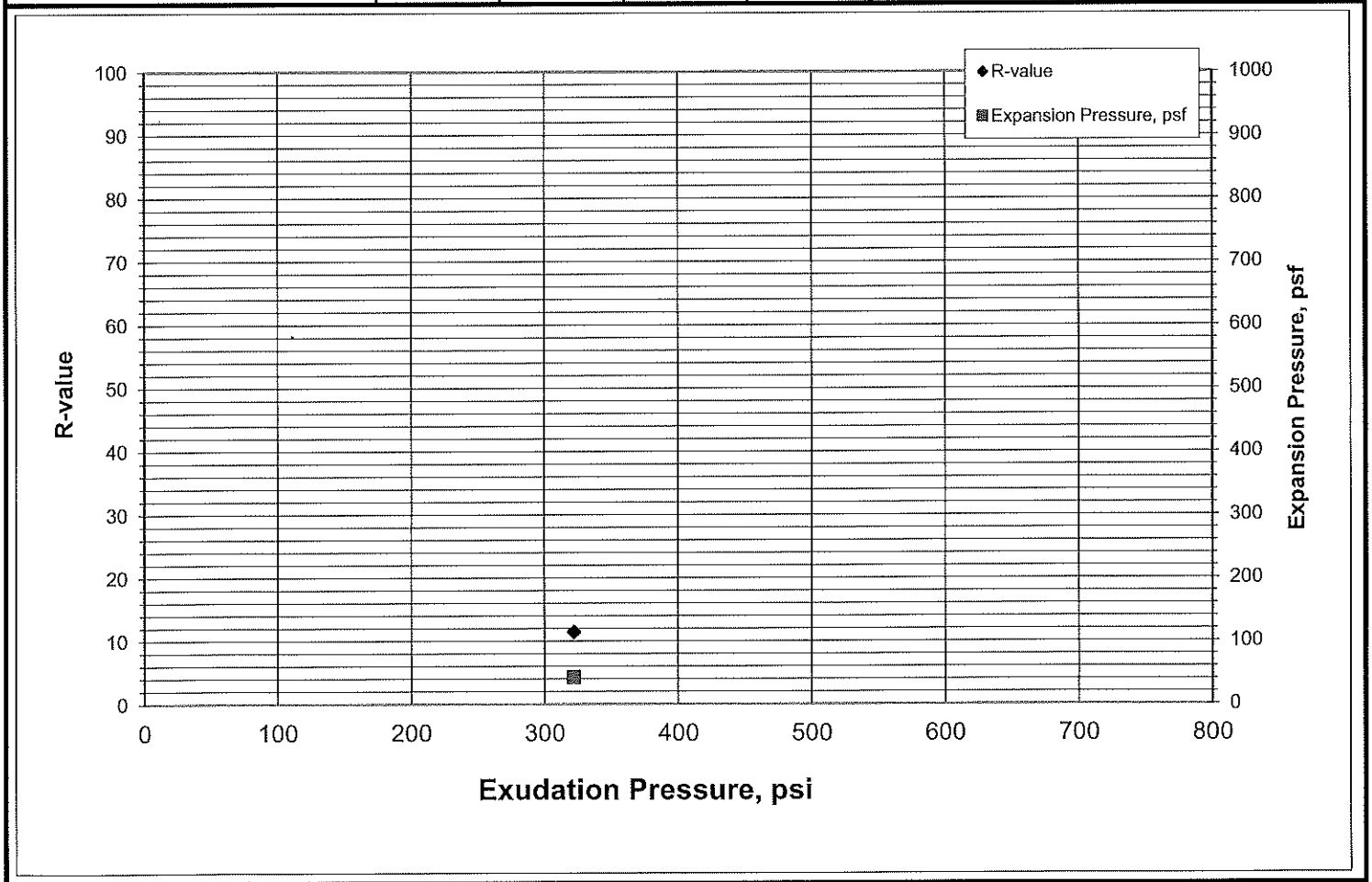
R-value Test Report (Caltrans 301)

Job No.:	018-957	**Date:**	07/16/18	**Initial Moisture,**	17.0
Client:	Cleary Consultants	**Tested**	PJ	**R-value**	<5
Project:	1398.1 Redwood City - VMSC & YMCA	**Reduced**	RU		
Sample	EB-1 thru 10 @ 0.5-3.0'	**Checked**	DC	**Expansion Pressure**	psf
Soil Type:	Very Dark Brown CLAY				

Specimen Number	A	B	C	D
Exudation Pressure, psi	322			
Prepaired Weight, grams	1200			
Final Water Added, grams/cc	119			
Weight of Soil & Mold, grams	3022			
Weight of Mold, grams	2098			
Height After Compaction, in.	2.32			
Moisture Content, %	28.6			
Dry Density, pcf	93.9			
Expansion Pressure, psf	43			
Stabilometer @ 1000				
Stabilometer @ 2000	137			
Turns Displacement	3.00			
R-value	11			

Remarks:

Soil extruded from the mold giving a false exudation pressure. Per Caltrans, the R-Value test was terminated and an R-Value of less than 5 was reported.



DRAWING NO. 32

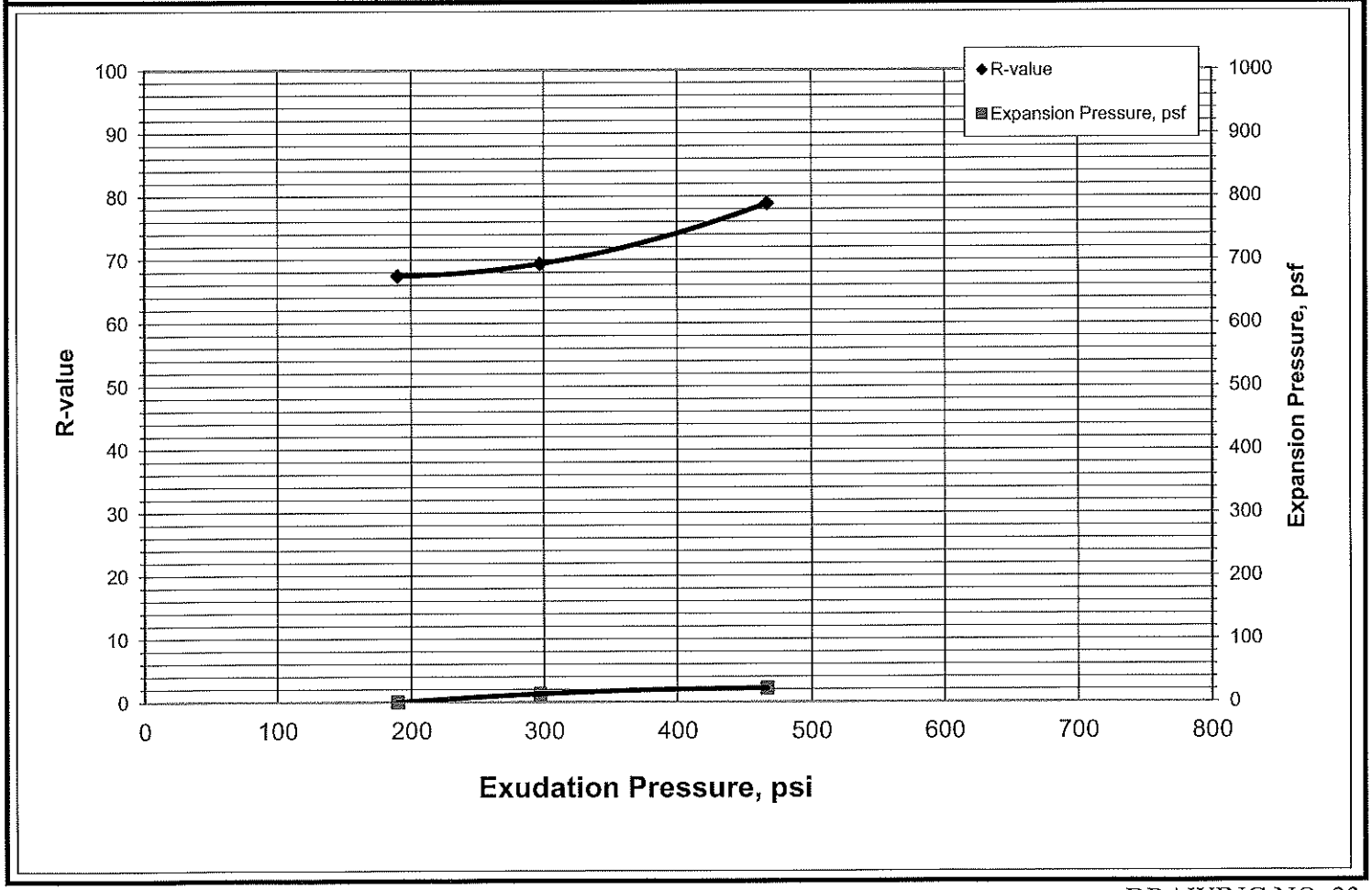
COOPER TESTING LABORATORY

R-value Test Report (Caltrans 301)

Job No.:	018-957	**Date:**	07/16/18	**Initial Moisture,**	18.8
Client:	Cleary Consultants	**Tested**	PJ	**R-value**	**69**
Project:	1398.1 Redwood City - VMSC & YMCA	**Reduced**	RU		
Sample	EB-1 thru EB-10 @ 0.5-3.0'	**Checked**	DC	**Expansion Pressure**	**15** psf
Soil Type:	Very Dark Brown CLAY (+5% HCQ)				

Specimen Number	A	B	C	D
Exudation Pressure, psi	190	467	297	
Prepaired Weight, grams	1200	1200	1200	
Final Water Added, grams/cc	60	38	48	
Weight of Soil & Mold, grams	3129	3090	3157	
Weight of Mold, grams	2106	2105	2116	
Height After Compaction, in.	2.57	2.48	2.55	
Moisture Content, %	24.7	22.5	23.5	
Dry Density, pcf	96.8	98.3	100.2	
Expansion Pressure, psf	0	22	13	
Stabilometer @ 1000				
Stabilometer @ 2000	48	30	42	
Turns Displacement	3.00	2.90	3.10	
R-value	67	79	69	

Remarks:



DRAWING NO. 33

COOPER TESTING LABORATORY

Corrosivity Tests Summary

CTL # 018-949 Date: 6/18/2018 Tested By: PJ Checked: PJ

Client: Cleary Consultants Project: Redwood City - Veterans Memorial Service Center & YMCA Complex Proj. No: 1398-1

Remarks:

Sample Location or ID			Resistivity @ 15.5 °C (Ohm-cm)			Chloride	Sulfate		pH	ORP (Redox)		Sulfide	Moisture	Soil Visual Description
			As Rec.	Min	Sat.	mg/kg	mg/kg	%				Qualitative	At Test	
						Dry Wt.	Dry Wt.	Dry Wt.		E_H (mv)	At Test	by Lead	%	
Boring	Sample, No.	Depth, ft.	ASTM G57	Cal 643	ASTM G57	ASTM D4327	ASTM D4327	ASTM D4327	ASTM G51	ASTM G200	Temp °C	Acetate Paper	ASTM D2216	
EB-1 thru EB-10	-	0.5-3.0	-	-	733	21	27	0.0027	7.8	592	25	-	25.7	Black CLAY w/ Sand

DRAWING NO. 34

APPENDIX A

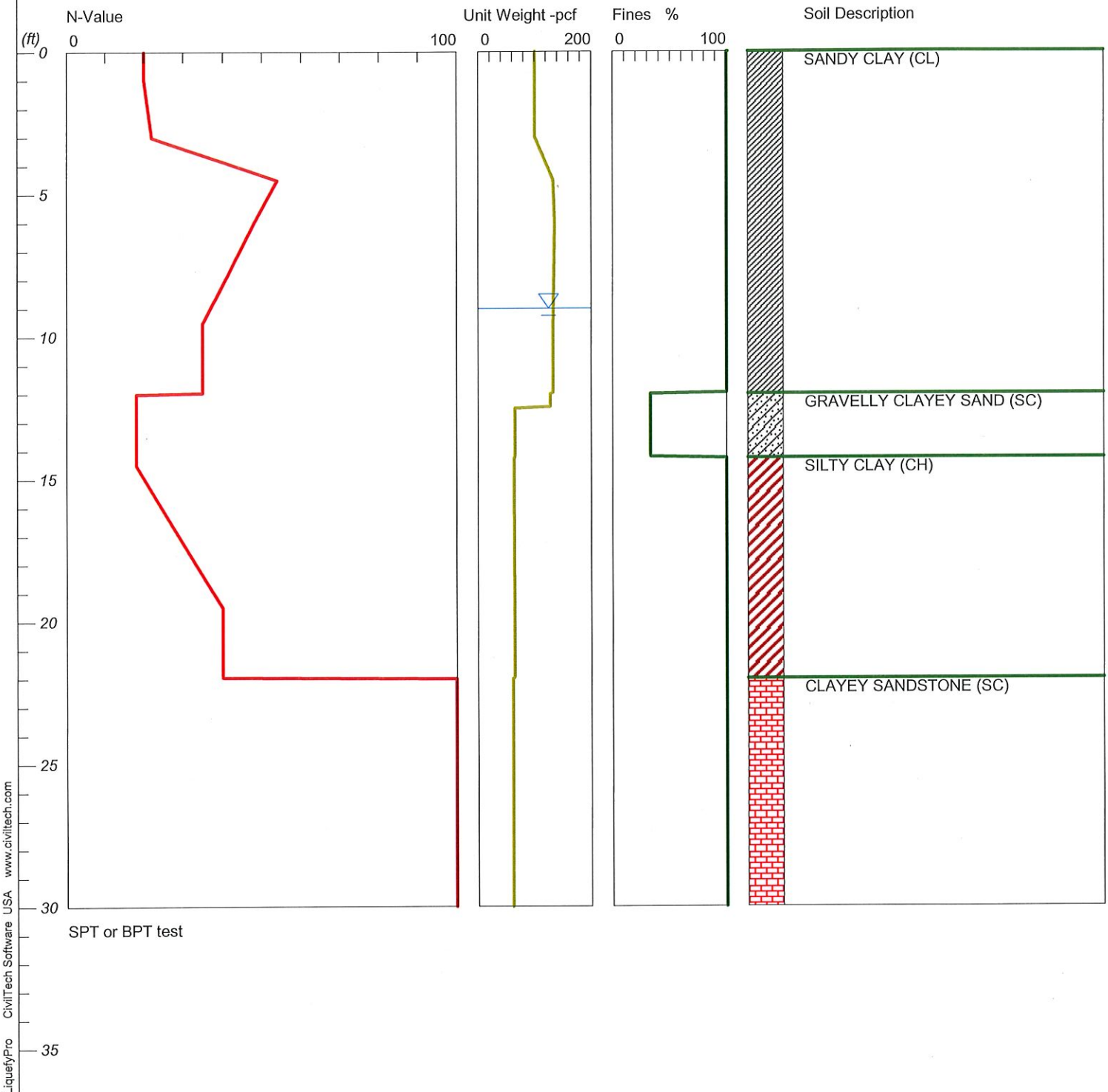
City of Redwood City,
Veterans Memorial Senior Center and YMCA Complex,
Liquefaction and Dry Settlement Analyses and Calculations,
EB-2, EB-5, EB-8 and EB-10,
Drilled June 5 through 7, 2018

LIQUEFACTION ANALYSIS

VETERANS MEMORIAL SENIOR CENTER AND YMCA COMPLEX

Hole No.=EB-2 Water Depth=9.00 ft

Magnitude=8.50
Acceleration=0.741g



CLEARY CONSULTANTS, INC.

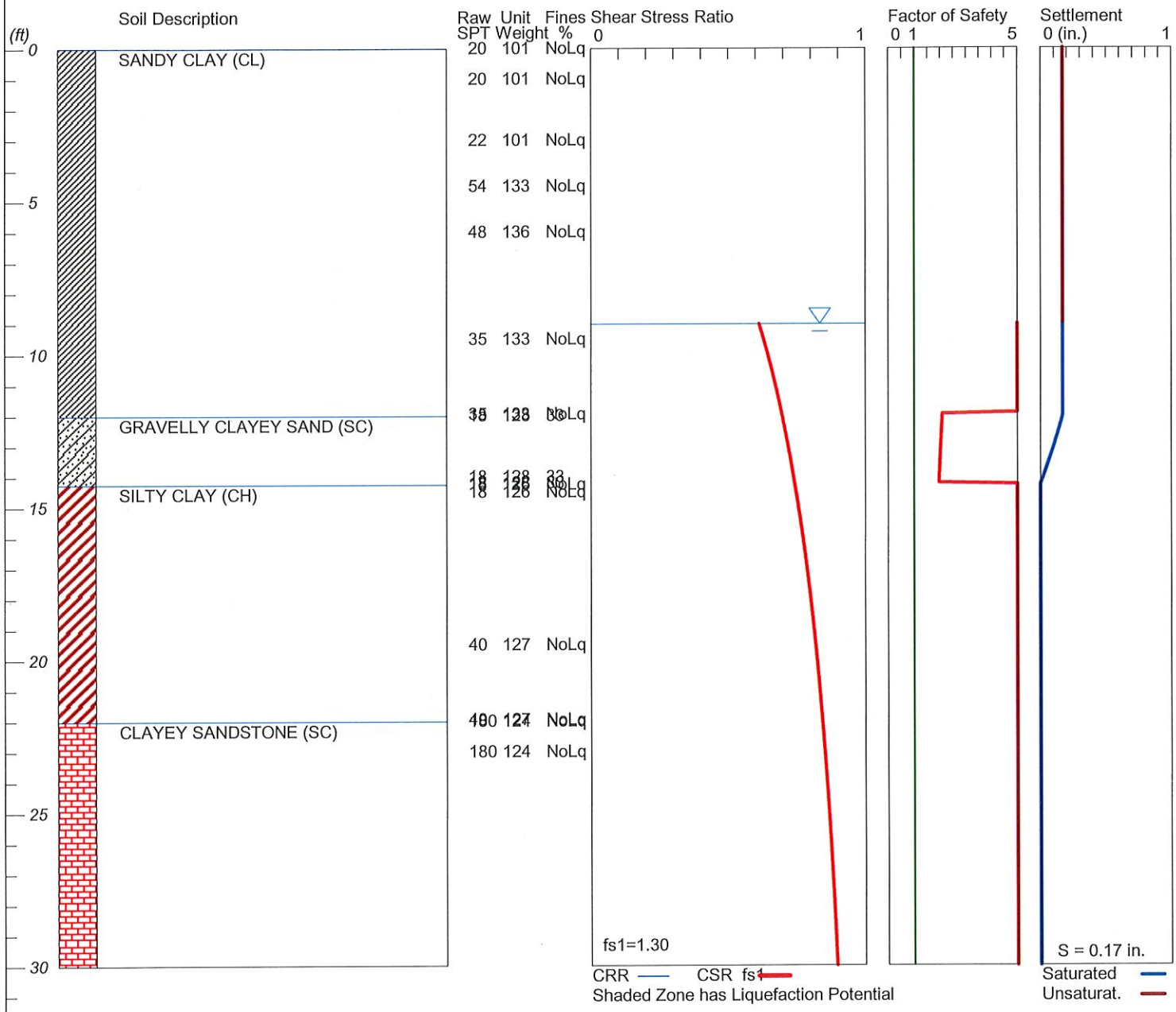
City of Redwood City

LIQUEFACTION ANALYSIS

VETERANS MEMORIAL SENIOR CENTER AND YMCA COMPLEX

Hole No.=EB-2 Water Depth=9.00 ft

Magnitude=8.50
Acceleration=0.741g



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LIQUEFACTION ANALYSIS SUMMARY
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Font: Courier New, Regular, Size 8 is recommended for this report.
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Input File Name: \\CCISERVER\Shared Folders\Rough Drafts\Grant Foster Rough Drafts\Liquefy Pro Data Files grant\1398.1 Redwood City, Veterans Memorial Senior Center and YMCA Complex, EB-2.liq
Title: VETERANS MEMORIAL SENIOR CENTER AND YMCA COMPLEX
Subtitle: City of Redwood City

Surface Elev.=
Hole No.=EB-2
Depth of Hole= 30.00 ft
Water Table during Earthquake= 9.00 ft
Water Table during In-Situ Testing= 12.50 ft
Max. Acceleration= 0.74 g
Earthquake Magnitude= 8.50

Input Data:
Surface Elev.=
Hole No.=EB-2
Depth of Hole=30.00 ft
Water Table during Earthquake= 9.00 ft
Water Table during In-Situ Testing= 12.50 ft
Max. Acceleration=0.74 g
Earthquake Magnitude=8.50
No-Liquefiable Soils: Based on Analysis

1. SPT or BPT Calculation.
2. Settlement Analysis Method: Tokimatsu, M-correction
3. Fines Correction for Liquefaction: Idriss/Seed
4. Fine Correction for Settlement: During Liquefaction*
5. Settlement Calculation in: All zones*
6. Hammer Energy Ratio, Ce = 1.25
7. Borehole Diameter, Cb= 1
8. Sampling Method, Cs= 1
9. User request factor of safety (apply to CSR) , User= 1.3
   Plot one CSR curve (fs1=User)
10. Use Curve Smoothing: Yes*

* Recommended Options

In-Situ Test Data:

Depth ft	SPT	gamma pcf	Fines %
0.00	20.00	101.00	NoLiq
1.00	20.00	101.00	NoLiq
3.00	22.00	101.00	NoLiq
4.50	54.00	133.00	NoLiq
6.00	48.00	136.00	NoLiq
9.50	35.00	133.00	NoLiq
11.95	35.00	133.00	NoLiq
12.00	18.00	128.00	33.00
14.00	18.00	128.00	33.00
14.20	18.00	128.00	33.00
14.25	18.00	126.00	NoLiq
14.50	18.00	126.00	NoLiq
19.50	40.00	127.00	NoLiq
21.95	40.00	127.00	NoLiq
22.00	180.00	124.00	NoLiq
23.00	180.00	124.00	NoLiq

Output Results:
Settlement of Saturated Sands=0.17 in.
Settlement of Unsaturated Sands=0.00 in.
Total Settlement of Saturated and Unsaturated Sands=0.17 in.
Differential Settlement=0.084 to 0.111 in.

Depth ft	CRRm	CSRfs	F.S.	S_sat. in.	S_dry in.	S_all in.

0.00	2.00	0.63	5.00	0.17	0.00	0.17
0.05	2.00	0.63	5.00	0.17	0.00	0.17
0.10	2.00	0.63	5.00	0.17	0.00	0.17
0.15	2.00	0.63	5.00	0.17	0.00	0.17
0.20	2.00	0.63	5.00	0.17	0.00	0.17
0.25	2.00	0.63	5.00	0.17	0.00	0.17
0.30	2.00	0.63	5.00	0.17	0.00	0.17
0.35	2.00	0.63	5.00	0.17	0.00	0.17
0.40	2.00	0.63	5.00	0.17	0.00	0.17
0.45	2.00	0.63	5.00	0.17	0.00	0.17
0.50	2.00	0.63	5.00	0.17	0.00	0.17
0.55	2.00	0.63	5.00	0.17	0.00	0.17
0.60	2.00	0.63	5.00	0.17	0.00	0.17
0.65	2.00	0.63	5.00	0.17	0.00	0.17
0.70	2.00	0.63	5.00	0.17	0.00	0.17
0.75	2.00	0.63	5.00	0.17	0.00	0.17
0.80	2.00	0.62	5.00	0.17	0.00	0.17
0.85	2.00	0.62	5.00	0.17	0.00	0.17
0.90	2.00	0.62	5.00	0.17	0.00	0.17
0.95	2.00	0.62	5.00	0.17	0.00	0.17
1.00	2.00	0.62	5.00	0.17	0.00	0.17
1.05	2.00	0.62	5.00	0.17	0.00	0.17
1.10	2.00	0.62	5.00	0.17	0.00	0.17
1.15	2.00	0.62	5.00	0.17	0.00	0.17
1.20	2.00	0.62	5.00	0.17	0.00	0.17
1.25	2.00	0.62	5.00	0.17	0.00	0.17
1.30	2.00	0.62	5.00	0.17	0.00	0.17
1.35	2.00	0.62	5.00	0.17	0.00	0.17
1.40	2.00	0.62	5.00	0.17	0.00	0.17
1.45	2.00	0.62	5.00	0.17	0.00	0.17
1.50	2.00	0.62	5.00	0.17	0.00	0.17
1.55	2.00	0.62	5.00	0.17	0.00	0.17
1.60	2.00	0.62	5.00	0.17	0.00	0.17
1.65	2.00	0.62	5.00	0.17	0.00	0.17
1.70	2.00	0.62	5.00	0.17	0.00	0.17
1.75	2.00	0.62	5.00	0.17	0.00	0.17
1.80	2.00	0.62	5.00	0.17	0.00	0.17
1.85	2.00	0.62	5.00	0.17	0.00	0.17
1.90	2.00	0.62	5.00	0.17	0.00	0.17
1.95	2.00	0.62	5.00	0.17	0.00	0.17
2.00	2.00	0.62	5.00	0.17	0.00	0.17
2.05	2.00	0.62	5.00	0.17	0.00	0.17
2.10	2.00	0.62	5.00	0.17	0.00	0.17
2.15	2.00	0.62	5.00	0.17	0.00	0.17
2.20	2.00	0.62	5.00	0.17	0.00	0.17
2.25	2.00	0.62	5.00	0.17	0.00	0.17
2.30	2.00	0.62	5.00	0.17	0.00	0.17
2.35	2.00	0.62	5.00	0.17	0.00	0.17
2.40	2.00	0.62	5.00	0.17	0.00	0.17
2.45	2.00	0.62	5.00	0.17	0.00	0.17
2.50	2.00	0.62	5.00	0.17	0.00	0.17
2.55	2.00	0.62	5.00	0.17	0.00	0.17
2.60	2.00	0.62	5.00	0.17	0.00	0.17
2.65	2.00	0.62	5.00	0.17	0.00	0.17
2.70	2.00	0.62	5.00	0.17	0.00	0.17
2.75	2.00	0.62	5.00	0.17	0.00	0.17
2.80	2.00	0.62	5.00	0.17	0.00	0.17
2.85	2.00	0.62	5.00	0.17	0.00	0.17
2.90	2.00	0.62	5.00	0.17	0.00	0.17
2.95	2.00	0.62	5.00	0.17	0.00	0.17
3.00	2.00	0.62	5.00	0.17	0.00	0.17
3.05	2.00	0.62	5.00	0.17	0.00	0.17
3.10	2.00	0.62	5.00	0.17	0.00	0.17
3.15	2.00	0.62	5.00	0.17	0.00	0.17
3.20	2.00	0.62	5.00	0.17	0.00	0.17
3.25	2.00	0.62	5.00	0.17	0.00	0.17
3.30	2.00	0.62	5.00	0.17	0.00	0.17
3.35	2.00	0.62	5.00	0.17	0.00	0.17
3.40	2.00	0.62	5.00	0.17	0.00	0.17
3.45	2.00	0.62	5.00	0.17	0.00	0.17
3.50	2.00	0.62	5.00	0.17	0.00	0.17
3.55	2.00	0.62	5.00	0.17	0.00	0.17
3.60	2.00	0.62	5.00	0.17	0.00	0.17
3.65	2.00	0.62	5.00	0.17	0.00	0.17
3.70	2.00	0.62	5.00	0.17	0.00	0.17

3.75	2.00	0.62	5.00	0.17	0.00	0.17
3.80	2.00	0.62	5.00	0.17	0.00	0.17
3.85	2.00	0.62	5.00	0.17	0.00	0.17
3.90	2.00	0.62	5.00	0.17	0.00	0.17
3.95	2.00	0.62	5.00	0.17	0.00	0.17
4.00	2.00	0.62	5.00	0.17	0.00	0.17
4.05	2.00	0.62	5.00	0.17	0.00	0.17
4.10	2.00	0.62	5.00	0.17	0.00	0.17
4.15	2.00	0.62	5.00	0.17	0.00	0.17
4.20	2.00	0.62	5.00	0.17	0.00	0.17
4.25	2.00	0.62	5.00	0.17	0.00	0.17
4.30	2.00	0.62	5.00	0.17	0.00	0.17
4.35	2.00	0.62	5.00	0.17	0.00	0.17
4.40	2.00	0.62	5.00	0.17	0.00	0.17
4.45	2.00	0.62	5.00	0.17	0.00	0.17
4.50	2.00	0.62	5.00	0.17	0.00	0.17
4.55	2.00	0.62	5.00	0.17	0.00	0.17
4.60	2.00	0.62	5.00	0.17	0.00	0.17
4.65	2.00	0.62	5.00	0.17	0.00	0.17
4.70	2.00	0.62	5.00	0.17	0.00	0.17
4.75	2.00	0.62	5.00	0.17	0.00	0.17
4.80	2.00	0.62	5.00	0.17	0.00	0.17
4.85	2.00	0.62	5.00	0.17	0.00	0.17
4.90	2.00	0.62	5.00	0.17	0.00	0.17
4.95	2.00	0.62	5.00	0.17	0.00	0.17
5.00	2.00	0.62	5.00	0.17	0.00	0.17
5.05	2.00	0.62	5.00	0.17	0.00	0.17
5.10	2.00	0.62	5.00	0.17	0.00	0.17
5.15	2.00	0.62	5.00	0.17	0.00	0.17
5.20	2.00	0.62	5.00	0.17	0.00	0.17
5.25	2.00	0.62	5.00	0.17	0.00	0.17
5.30	2.00	0.62	5.00	0.17	0.00	0.17
5.35	2.00	0.62	5.00	0.17	0.00	0.17
5.40	2.00	0.62	5.00	0.17	0.00	0.17
5.45	2.00	0.62	5.00	0.17	0.00	0.17
5.50	2.00	0.62	5.00	0.17	0.00	0.17
5.55	2.00	0.62	5.00	0.17	0.00	0.17
5.60	2.00	0.62	5.00	0.17	0.00	0.17
5.65	2.00	0.62	5.00	0.17	0.00	0.17
5.70	2.00	0.62	5.00	0.17	0.00	0.17
5.75	2.00	0.62	5.00	0.17	0.00	0.17
5.80	2.00	0.62	5.00	0.17	0.00	0.17
5.85	2.00	0.62	5.00	0.17	0.00	0.17
5.90	2.00	0.62	5.00	0.17	0.00	0.17
5.95	2.00	0.62	5.00	0.17	0.00	0.17
6.00	2.00	0.62	5.00	0.17	0.00	0.17
6.05	2.00	0.62	5.00	0.17	0.00	0.17
6.10	2.00	0.62	5.00	0.17	0.00	0.17
6.15	2.00	0.62	5.00	0.17	0.00	0.17
6.20	2.00	0.62	5.00	0.17	0.00	0.17
6.25	2.00	0.62	5.00	0.17	0.00	0.17
6.30	2.00	0.62	5.00	0.17	0.00	0.17
6.35	2.00	0.62	5.00	0.17	0.00	0.17
6.40	2.00	0.62	5.00	0.17	0.00	0.17
6.45	2.00	0.62	5.00	0.17	0.00	0.17
6.50	2.00	0.62	5.00	0.17	0.00	0.17
6.55	2.00	0.62	5.00	0.17	0.00	0.17
6.60	2.00	0.62	5.00	0.17	0.00	0.17
6.65	2.00	0.62	5.00	0.17	0.00	0.17
6.70	2.00	0.62	5.00	0.17	0.00	0.17
6.75	2.00	0.62	5.00	0.17	0.00	0.17
6.80	2.00	0.62	5.00	0.17	0.00	0.17
6.85	2.00	0.62	5.00	0.17	0.00	0.17
6.90	2.00	0.62	5.00	0.17	0.00	0.17
6.95	2.00	0.62	5.00	0.17	0.00	0.17
7.00	2.00	0.62	5.00	0.17	0.00	0.17
7.05	2.00	0.62	5.00	0.17	0.00	0.17
7.10	2.00	0.62	5.00	0.17	0.00	0.17
7.15	2.00	0.62	5.00	0.17	0.00	0.17
7.20	2.00	0.62	5.00	0.17	0.00	0.17
7.25	2.00	0.62	5.00	0.17	0.00	0.17
7.30	2.00	0.62	5.00	0.17	0.00	0.17
7.35	2.00	0.62	5.00	0.17	0.00	0.17
7.40	2.00	0.62	5.00	0.17	0.00	0.17
7.45	2.00	0.62	5.00	0.17	0.00	0.17
7.50	2.00	0.62	5.00	0.17	0.00	0.17

7.55	2.00	0.62	5.00	0.17	0.00	0.17
7.60	2.00	0.62	5.00	0.17	0.00	0.17
7.65	2.00	0.61	5.00	0.17	0.00	0.17
7.70	2.00	0.61	5.00	0.17	0.00	0.17
7.75	2.00	0.61	5.00	0.17	0.00	0.17
7.80	2.00	0.61	5.00	0.17	0.00	0.17
7.85	2.00	0.61	5.00	0.17	0.00	0.17
7.90	2.00	0.61	5.00	0.17	0.00	0.17
7.95	2.00	0.61	5.00	0.17	0.00	0.17
8.00	2.00	0.61	5.00	0.17	0.00	0.17
8.05	2.00	0.61	5.00	0.17	0.00	0.17
8.10	2.00	0.61	5.00	0.17	0.00	0.17
8.15	2.00	0.61	5.00	0.17	0.00	0.17
8.20	2.00	0.61	5.00	0.17	0.00	0.17
8.25	2.00	0.61	5.00	0.17	0.00	0.17
8.30	2.00	0.61	5.00	0.17	0.00	0.17
8.35	2.00	0.61	5.00	0.17	0.00	0.17
8.40	2.00	0.61	5.00	0.17	0.00	0.17
8.45	2.00	0.61	5.00	0.17	0.00	0.17
8.50	2.00	0.61	5.00	0.17	0.00	0.17
8.55	2.00	0.61	5.00	0.17	0.00	0.17
8.60	2.00	0.61	5.00	0.17	0.00	0.17
8.65	2.00	0.61	5.00	0.17	0.00	0.17
8.70	2.00	0.61	5.00	0.17	0.00	0.17
8.75	2.00	0.61	5.00	0.17	0.00	0.17
8.80	2.00	0.61	5.00	0.17	0.00	0.17
8.85	2.00	0.61	5.00	0.17	0.00	0.17
8.90	2.00	0.61	5.00	0.17	0.00	0.17
8.95	2.00	0.61	5.00	0.17	0.00	0.17
9.00	2.00	0.61	5.00	0.17	0.00	0.17
9.05	2.00	0.61	5.00	0.17	0.00	0.17
9.10	2.00	0.62	5.00	0.17	0.00	0.17
9.15	2.00	0.62	5.00	0.17	0.00	0.17
9.20	2.00	0.62	5.00	0.17	0.00	0.17
9.25	2.00	0.62	5.00	0.17	0.00	0.17
9.30	2.00	0.62	5.00	0.17	0.00	0.17
9.35	2.00	0.62	5.00	0.17	0.00	0.17
9.40	2.00	0.63	5.00	0.17	0.00	0.17
9.45	2.00	0.63	5.00	0.17	0.00	0.17
9.50	2.00	0.63	5.00	0.17	0.00	0.17
9.55	2.00	0.63	5.00	0.17	0.00	0.17
9.60	2.00	0.63	5.00	0.17	0.00	0.17
9.65	2.00	0.63	5.00	0.17	0.00	0.17
9.70	2.00	0.64	5.00	0.17	0.00	0.17
9.75	2.00	0.64	5.00	0.17	0.00	0.17
9.80	2.00	0.64	5.00	0.17	0.00	0.17
9.85	2.00	0.64	5.00	0.17	0.00	0.17
9.90	2.00	0.64	5.00	0.17	0.00	0.17
9.95	2.00	0.64	5.00	0.17	0.00	0.17
10.00	2.00	0.64	5.00	0.17	0.00	0.17
10.05	2.00	0.65	5.00	0.17	0.00	0.17
10.10	2.00	0.65	5.00	0.17	0.00	0.17
10.15	2.00	0.65	5.00	0.17	0.00	0.17
10.20	2.00	0.65	5.00	0.17	0.00	0.17
10.25	2.00	0.65	5.00	0.17	0.00	0.17
10.30	2.00	0.65	5.00	0.17	0.00	0.17
10.35	2.00	0.65	5.00	0.17	0.00	0.17
10.40	2.00	0.66	5.00	0.17	0.00	0.17
10.45	2.00	0.66	5.00	0.17	0.00	0.17
10.50	2.00	0.66	5.00	0.17	0.00	0.17
10.55	2.00	0.66	5.00	0.17	0.00	0.17
10.60	2.00	0.66	5.00	0.17	0.00	0.17
10.65	2.00	0.66	5.00	0.17	0.00	0.17
10.70	2.00	0.66	5.00	0.17	0.00	0.17
10.75	2.00	0.67	5.00	0.17	0.00	0.17
10.80	2.00	0.67	5.00	0.17	0.00	0.17
10.85	2.00	0.67	5.00	0.17	0.00	0.17
10.90	2.00	0.67	5.00	0.17	0.00	0.17
10.95	2.00	0.67	5.00	0.17	0.00	0.17
11.00	2.00	0.67	5.00	0.17	0.00	0.17
11.05	2.00	0.67	5.00	0.17	0.00	0.17
11.10	2.00	0.67	5.00	0.17	0.00	0.17
11.15	2.00	0.68	5.00	0.17	0.00	0.17
11.20	2.00	0.68	5.00	0.17	0.00	0.17
11.25	2.00	0.68	5.00	0.17	0.00	0.17
11.30	2.00	0.68	5.00	0.17	0.00	0.17

11.35	2.00	0.68	5.00	0.17	0.00	0.17
11.40	2.00	0.68	5.00	0.17	0.00	0.17
11.45	2.00	0.68	5.00	0.17	0.00	0.17
11.50	2.00	0.68	5.00	0.17	0.00	0.17
11.55	2.00	0.69	5.00	0.17	0.00	0.17
11.60	2.00	0.69	5.00	0.17	0.00	0.17
11.65	2.00	0.69	5.00	0.17	0.00	0.17
11.70	2.00	0.69	5.00	0.17	0.00	0.17
11.75	2.00	0.69	5.00	0.17	0.00	0.17
11.80	2.00	0.69	5.00	0.17	0.00	0.17
11.85	2.00	0.69	5.00	0.17	0.00	0.17
11.90	2.00	0.69	5.00	0.17	0.00	0.17
11.95	1.45	0.70	2.09	0.17	0.00	0.17
12.00	1.45	0.70	2.08	0.17	0.00	0.17
12.05	1.45	0.70	2.08	0.17	0.00	0.17
12.10	1.45	0.70	2.08	0.16	0.00	0.16
12.15	1.45	0.70	2.07	0.16	0.00	0.16
12.20	1.45	0.70	2.07	0.16	0.00	0.16
12.25	1.45	0.70	2.07	0.15	0.00	0.15
12.30	1.45	0.70	2.06	0.15	0.00	0.15
12.35	1.45	0.70	2.06	0.15	0.00	0.15
12.40	1.45	0.71	2.06	0.14	0.00	0.14
12.45	1.45	0.71	2.05	0.14	0.00	0.14
12.50	1.45	0.71	2.05	0.14	0.00	0.14
12.55	1.45	0.71	2.05	0.13	0.00	0.13
12.60	1.45	0.71	2.04	0.13	0.00	0.13
12.65	1.45	0.71	2.04	0.13	0.00	0.13
12.70	1.45	0.71	2.04	0.12	0.00	0.12
12.75	1.45	0.71	2.03	0.12	0.00	0.12
12.80	1.45	0.71	2.03	0.11	0.00	0.11
12.85	1.45	0.72	2.03	0.11	0.00	0.11
12.90	1.45	0.72	2.03	0.11	0.00	0.11
12.95	1.45	0.72	2.02	0.10	0.00	0.10
13.00	1.45	0.72	2.02	0.10	0.00	0.10
13.05	1.45	0.72	2.02	0.10	0.00	0.10
13.10	1.45	0.72	2.01	0.09	0.00	0.09
13.15	1.45	0.72	2.01	0.09	0.00	0.09
13.20	1.45	0.72	2.01	0.08	0.00	0.08
13.25	1.45	0.72	2.01	0.08	0.00	0.08
13.30	1.45	0.72	2.00	0.08	0.00	0.08
13.35	1.45	0.73	2.00	0.07	0.00	0.07
13.40	1.45	0.73	2.00	0.07	0.00	0.07
13.45	1.45	0.73	1.99	0.07	0.00	0.07
13.50	1.45	0.73	1.99	0.06	0.00	0.06
13.55	1.45	0.73	1.99	0.06	0.00	0.06
13.60	1.45	0.73	1.99	0.05	0.00	0.05
13.65	1.45	0.73	1.98	0.05	0.00	0.05
13.70	1.45	0.73	1.98	0.05	0.00	0.05
13.75	1.45	0.73	1.98	0.04	0.00	0.04
13.80	1.45	0.73	1.98	0.04	0.00	0.04
13.85	1.45	0.74	1.97	0.03	0.00	0.03
13.90	1.45	0.74	1.97	0.03	0.00	0.03
13.95	1.45	0.74	1.97	0.02	0.00	0.02
14.00	1.45	0.74	1.97	0.02	0.00	0.02
14.05	1.45	0.74	1.96	0.02	0.00	0.02
14.10	1.45	0.74	1.96	0.01	0.00	0.01
14.15	1.45	0.74	1.96	0.01	0.00	0.01
14.20	1.45	0.74	1.96	0.00	0.00	0.00
14.25	2.00	0.74	5.00	0.00	0.00	0.00
14.30	2.00	0.74	5.00	0.00	0.00	0.00
14.35	2.00	0.74	5.00	0.00	0.00	0.00
14.40	2.00	0.75	5.00	0.00	0.00	0.00
14.45	2.00	0.75	5.00	0.00	0.00	0.00
14.50	2.00	0.75	5.00	0.00	0.00	0.00
14.55	2.00	0.75	5.00	0.00	0.00	0.00
14.60	2.00	0.75	5.00	0.00	0.00	0.00
14.65	2.00	0.75	5.00	0.00	0.00	0.00
14.70	2.00	0.75	5.00	0.00	0.00	0.00
14.75	2.00	0.75	5.00	0.00	0.00	0.00
14.80	2.00	0.75	5.00	0.00	0.00	0.00
14.85	2.00	0.75	5.00	0.00	0.00	0.00
14.90	2.00	0.75	5.00	0.00	0.00	0.00
14.95	2.00	0.76	5.00	0.00	0.00	0.00
15.00	2.00	0.76	5.00	0.00	0.00	0.00
15.05	2.00	0.76	5.00	0.00	0.00	0.00
15.10	2.00	0.76	5.00	0.00	0.00	0.00

15.15	2.00	0.76	5.00	0.00	0.00	0.00
15.20	2.00	0.76	5.00	0.00	0.00	0.00
15.25	2.00	0.76	5.00	0.00	0.00	0.00
15.30	2.00	0.76	5.00	0.00	0.00	0.00
15.35	2.00	0.76	5.00	0.00	0.00	0.00
15.40	2.00	0.76	5.00	0.00	0.00	0.00
15.45	2.00	0.76	5.00	0.00	0.00	0.00
15.50	2.00	0.76	5.00	0.00	0.00	0.00
15.55	2.00	0.77	5.00	0.00	0.00	0.00
15.60	2.00	0.77	5.00	0.00	0.00	0.00
15.65	2.00	0.77	5.00	0.00	0.00	0.00
15.70	2.00	0.77	5.00	0.00	0.00	0.00
15.75	2.00	0.77	5.00	0.00	0.00	0.00
15.80	2.00	0.77	5.00	0.00	0.00	0.00
15.85	2.00	0.77	5.00	0.00	0.00	0.00
15.90	2.00	0.77	5.00	0.00	0.00	0.00
15.95	2.00	0.77	5.00	0.00	0.00	0.00
16.00	2.00	0.77	5.00	0.00	0.00	0.00
16.05	2.00	0.77	5.00	0.00	0.00	0.00
16.10	2.00	0.77	5.00	0.00	0.00	0.00
16.15	2.00	0.77	5.00	0.00	0.00	0.00
16.20	2.00	0.78	5.00	0.00	0.00	0.00
16.25	2.00	0.78	5.00	0.00	0.00	0.00
16.30	2.00	0.78	5.00	0.00	0.00	0.00
16.35	2.00	0.78	5.00	0.00	0.00	0.00
16.40	2.00	0.78	5.00	0.00	0.00	0.00
16.45	2.00	0.78	5.00	0.00	0.00	0.00
16.50	2.00	0.78	5.00	0.00	0.00	0.00
16.55	2.00	0.78	5.00	0.00	0.00	0.00
16.60	2.00	0.78	5.00	0.00	0.00	0.00
16.65	2.00	0.78	5.00	0.00	0.00	0.00
16.70	2.00	0.78	5.00	0.00	0.00	0.00
16.75	2.00	0.78	5.00	0.00	0.00	0.00
16.80	2.00	0.78	5.00	0.00	0.00	0.00
16.85	2.00	0.78	5.00	0.00	0.00	0.00
16.90	2.00	0.79	5.00	0.00	0.00	0.00
16.95	2.00	0.79	5.00	0.00	0.00	0.00
17.00	2.00	0.79	5.00	0.00	0.00	0.00
17.05	2.00	0.79	5.00	0.00	0.00	0.00
17.10	2.00	0.79	5.00	0.00	0.00	0.00
17.15	2.00	0.79	5.00	0.00	0.00	0.00
17.20	2.00	0.79	5.00	0.00	0.00	0.00
17.25	2.00	0.79	5.00	0.00	0.00	0.00
17.30	2.00	0.79	5.00	0.00	0.00	0.00
17.35	2.00	0.79	5.00	0.00	0.00	0.00
17.40	2.00	0.79	5.00	0.00	0.00	0.00
17.45	2.00	0.79	5.00	0.00	0.00	0.00
17.50	2.00	0.79	5.00	0.00	0.00	0.00
17.55	2.00	0.79	5.00	0.00	0.00	0.00
17.60	2.00	0.79	5.00	0.00	0.00	0.00
17.65	2.00	0.80	5.00	0.00	0.00	0.00
17.70	2.00	0.80	5.00	0.00	0.00	0.00
17.75	2.00	0.80	5.00	0.00	0.00	0.00
17.80	2.00	0.80	5.00	0.00	0.00	0.00
17.85	2.00	0.80	5.00	0.00	0.00	0.00
17.90	2.00	0.80	5.00	0.00	0.00	0.00
17.95	2.00	0.80	5.00	0.00	0.00	0.00
18.00	2.00	0.80	5.00	0.00	0.00	0.00
18.05	2.00	0.80	5.00	0.00	0.00	0.00
18.10	2.00	0.80	5.00	0.00	0.00	0.00
18.15	2.00	0.80	5.00	0.00	0.00	0.00
18.20	2.00	0.80	5.00	0.00	0.00	0.00
18.25	2.00	0.80	5.00	0.00	0.00	0.00
18.30	2.00	0.80	5.00	0.00	0.00	0.00
18.35	2.00	0.80	5.00	0.00	0.00	0.00
18.40	2.00	0.81	5.00	0.00	0.00	0.00
18.45	2.00	0.81	5.00	0.00	0.00	0.00
18.50	2.00	0.81	5.00	0.00	0.00	0.00
18.55	2.00	0.81	5.00	0.00	0.00	0.00
18.60	2.00	0.81	5.00	0.00	0.00	0.00
18.65	2.00	0.81	5.00	0.00	0.00	0.00
18.70	2.00	0.81	5.00	0.00	0.00	0.00
18.75	2.00	0.81	5.00	0.00	0.00	0.00
18.80	2.00	0.81	5.00	0.00	0.00	0.00
18.85	2.00	0.81	5.00	0.00	0.00	0.00
18.90	2.00	0.81	5.00	0.00	0.00	0.00

18.95	2.00	0.81	5.00	0.00	0.00	0.00
19.00	2.00	0.81	5.00	0.00	0.00	0.00
19.05	2.00	0.81	5.00	0.00	0.00	0.00
19.10	2.00	0.81	5.00	0.00	0.00	0.00
19.15	2.00	0.81	5.00	0.00	0.00	0.00
19.20	2.00	0.81	5.00	0.00	0.00	0.00
19.25	2.00	0.81	5.00	0.00	0.00	0.00
19.30	2.00	0.82	5.00	0.00	0.00	0.00
19.35	2.00	0.82	5.00	0.00	0.00	0.00
19.40	2.00	0.82	5.00	0.00	0.00	0.00
19.45	2.00	0.82	5.00	0.00	0.00	0.00
19.50	2.00	0.82	5.00	0.00	0.00	0.00
19.55	2.00	0.82	5.00	0.00	0.00	0.00
19.60	2.00	0.82	5.00	0.00	0.00	0.00
19.65	2.00	0.82	5.00	0.00	0.00	0.00
19.70	2.00	0.82	5.00	0.00	0.00	0.00
19.75	2.00	0.82	5.00	0.00	0.00	0.00
19.80	2.00	0.82	5.00	0.00	0.00	0.00
19.85	2.00	0.82	5.00	0.00	0.00	0.00
19.90	2.00	0.82	5.00	0.00	0.00	0.00
19.95	2.00	0.82	5.00	0.00	0.00	0.00
20.00	2.00	0.82	5.00	0.00	0.00	0.00
20.05	2.00	0.82	5.00	0.00	0.00	0.00
20.10	2.00	0.82	5.00	0.00	0.00	0.00
20.15	2.00	0.82	5.00	0.00	0.00	0.00
20.20	2.00	0.83	5.00	0.00	0.00	0.00
20.25	2.00	0.83	5.00	0.00	0.00	0.00
20.30	2.00	0.83	5.00	0.00	0.00	0.00
20.35	2.00	0.83	5.00	0.00	0.00	0.00
20.40	2.00	0.83	5.00	0.00	0.00	0.00
20.45	2.00	0.83	5.00	0.00	0.00	0.00
20.50	2.00	0.83	5.00	0.00	0.00	0.00
20.55	2.00	0.83	5.00	0.00	0.00	0.00
20.60	2.00	0.83	5.00	0.00	0.00	0.00
20.65	2.00	0.83	5.00	0.00	0.00	0.00
20.70	2.00	0.83	5.00	0.00	0.00	0.00
20.75	2.00	0.83	5.00	0.00	0.00	0.00
20.80	2.00	0.83	5.00	0.00	0.00	0.00
20.85	2.00	0.83	5.00	0.00	0.00	0.00
20.90	2.00	0.83	5.00	0.00	0.00	0.00
20.95	2.00	0.83	5.00	0.00	0.00	0.00
21.00	2.00	0.83	5.00	0.00	0.00	0.00
21.05	2.00	0.83	5.00	0.00	0.00	0.00
21.10	2.00	0.83	5.00	0.00	0.00	0.00
21.15	2.00	0.83	5.00	0.00	0.00	0.00
21.20	2.00	0.84	5.00	0.00	0.00	0.00
21.25	2.00	0.84	5.00	0.00	0.00	0.00
21.30	2.00	0.84	5.00	0.00	0.00	0.00
21.35	2.00	0.84	5.00	0.00	0.00	0.00
21.40	2.00	0.84	5.00	0.00	0.00	0.00
21.45	2.00	0.84	5.00	0.00	0.00	0.00
21.50	2.00	0.84	5.00	0.00	0.00	0.00
21.55	2.00	0.84	5.00	0.00	0.00	0.00
21.60	2.00	0.84	5.00	0.00	0.00	0.00
21.65	2.00	0.84	5.00	0.00	0.00	0.00
21.70	2.00	0.84	5.00	0.00	0.00	0.00
21.75	2.00	0.84	5.00	0.00	0.00	0.00
21.80	2.00	0.84	5.00	0.00	0.00	0.00
21.85	2.00	0.84	5.00	0.00	0.00	0.00
21.90	2.00	0.84	5.00	0.00	0.00	0.00
21.95	2.00	0.84	5.00	0.00	0.00	0.00
22.00	2.00	0.84	5.00	0.00	0.00	0.00
22.05	2.00	0.84	5.00	0.00	0.00	0.00
22.10	2.00	0.84	5.00	0.00	0.00	0.00
22.15	2.00	0.84	5.00	0.00	0.00	0.00
22.20	2.00	0.84	5.00	0.00	0.00	0.00
22.25	2.00	0.84	5.00	0.00	0.00	0.00
22.30	2.00	0.84	5.00	0.00	0.00	0.00
22.35	2.00	0.85	5.00	0.00	0.00	0.00
22.40	2.00	0.85	5.00	0.00	0.00	0.00
22.45	2.00	0.85	5.00	0.00	0.00	0.00
22.50	2.00	0.85	5.00	0.00	0.00	0.00
22.55	2.00	0.85	5.00	0.00	0.00	0.00
22.60	2.00	0.85	5.00	0.00	0.00	0.00
22.65	2.00	0.85	5.00	0.00	0.00	0.00
22.70	2.00	0.85	5.00	0.00	0.00	0.00

22.75	2.00	0.85	5.00	0.00	0.00	0.00
22.80	2.00	0.85	5.00	0.00	0.00	0.00
22.85	2.00	0.85	5.00	0.00	0.00	0.00
22.90	2.00	0.85	5.00	0.00	0.00	0.00
22.95	2.00	0.85	5.00	0.00	0.00	0.00
23.00	2.00	0.85	5.00	0.00	0.00	0.00
23.05	2.00	0.85	5.00	0.00	0.00	0.00
23.10	2.00	0.85	5.00	0.00	0.00	0.00
23.15	2.00	0.85	5.00	0.00	0.00	0.00
23.20	2.00	0.85	5.00	0.00	0.00	0.00
23.25	2.00	0.85	5.00	0.00	0.00	0.00
23.30	2.00	0.85	5.00	0.00	0.00	0.00
23.35	2.00	0.85	5.00	0.00	0.00	0.00
23.40	2.00	0.85	5.00	0.00	0.00	0.00
23.45	2.00	0.85	5.00	0.00	0.00	0.00
23.50	2.00	0.86	5.00	0.00	0.00	0.00
23.55	2.00	0.86	5.00	0.00	0.00	0.00
23.60	2.00	0.86	5.00	0.00	0.00	0.00
23.65	2.00	0.86	5.00	0.00	0.00	0.00
23.70	2.00	0.86	5.00	0.00	0.00	0.00
23.75	2.00	0.86	5.00	0.00	0.00	0.00
23.80	2.00	0.86	5.00	0.00	0.00	0.00
23.85	2.00	0.86	5.00	0.00	0.00	0.00
23.90	2.00	0.86	5.00	0.00	0.00	0.00
23.95	2.00	0.86	5.00	0.00	0.00	0.00
24.00	2.00	0.86	5.00	0.00	0.00	0.00
24.05	2.00	0.86	5.00	0.00	0.00	0.00
24.10	2.00	0.86	5.00	0.00	0.00	0.00
24.15	2.00	0.86	5.00	0.00	0.00	0.00
24.20	2.00	0.86	5.00	0.00	0.00	0.00
24.25	2.00	0.86	5.00	0.00	0.00	0.00
24.30	2.00	0.86	5.00	0.00	0.00	0.00
24.35	2.00	0.86	5.00	0.00	0.00	0.00
24.40	2.00	0.86	5.00	0.00	0.00	0.00
24.45	2.00	0.86	5.00	0.00	0.00	0.00
24.50	2.00	0.86	5.00	0.00	0.00	0.00
24.55	2.00	0.86	5.00	0.00	0.00	0.00
24.60	2.00	0.86	5.00	0.00	0.00	0.00
24.65	2.00	0.86	5.00	0.00	0.00	0.00
24.70	2.00	0.86	5.00	0.00	0.00	0.00
24.75	2.00	0.86	5.00	0.00	0.00	0.00
24.80	2.00	0.87	5.00	0.00	0.00	0.00
24.85	2.00	0.87	5.00	0.00	0.00	0.00
24.90	2.00	0.87	5.00	0.00	0.00	0.00
24.95	2.00	0.87	5.00	0.00	0.00	0.00
25.00	2.00	0.87	5.00	0.00	0.00	0.00
25.05	2.00	0.87	5.00	0.00	0.00	0.00
25.10	2.00	0.87	5.00	0.00	0.00	0.00
25.15	2.00	0.87	5.00	0.00	0.00	0.00
25.20	2.00	0.87	5.00	0.00	0.00	0.00
25.25	2.00	0.87	5.00	0.00	0.00	0.00
25.30	2.00	0.87	5.00	0.00	0.00	0.00
25.35	2.00	0.87	5.00	0.00	0.00	0.00
25.40	2.00	0.87	5.00	0.00	0.00	0.00
25.45	2.00	0.87	5.00	0.00	0.00	0.00
25.50	2.00	0.87	5.00	0.00	0.00	0.00
25.55	2.00	0.87	5.00	0.00	0.00	0.00
25.60	2.00	0.87	5.00	0.00	0.00	0.00
25.65	2.00	0.87	5.00	0.00	0.00	0.00
25.70	2.00	0.87	5.00	0.00	0.00	0.00
25.75	2.00	0.87	5.00	0.00	0.00	0.00
25.80	2.00	0.87	5.00	0.00	0.00	0.00
25.85	2.00	0.87	5.00	0.00	0.00	0.00
25.90	2.00	0.87	5.00	0.00	0.00	0.00
25.95	2.00	0.87	5.00	0.00	0.00	0.00
26.00	2.00	0.87	5.00	0.00	0.00	0.00
26.05	2.00	0.87	5.00	0.00	0.00	0.00
26.10	2.00	0.87	5.00	0.00	0.00	0.00
26.15	2.00	0.87	5.00	0.00	0.00	0.00
26.20	2.00	0.87	5.00	0.00	0.00	0.00
26.25	2.00	0.88	5.00	0.00	0.00	0.00
26.30	2.00	0.88	5.00	0.00	0.00	0.00
26.35	2.00	0.88	5.00	0.00	0.00	0.00
26.40	2.00	0.88	5.00	0.00	0.00	0.00
26.45	2.00	0.88	5.00	0.00	0.00	0.00
26.50	2.00	0.88	5.00	0.00	0.00	0.00

26.55	2.00	0.88	5.00	0.00	0.00	0.00
26.60	2.00	0.88	5.00	0.00	0.00	0.00
26.65	2.00	0.88	5.00	0.00	0.00	0.00
26.70	2.00	0.88	5.00	0.00	0.00	0.00
26.75	2.00	0.88	5.00	0.00	0.00	0.00
26.80	2.00	0.88	5.00	0.00	0.00	0.00
26.85	2.00	0.88	5.00	0.00	0.00	0.00
26.90	2.00	0.88	5.00	0.00	0.00	0.00
26.95	2.00	0.88	5.00	0.00	0.00	0.00
27.00	2.00	0.88	5.00	0.00	0.00	0.00
27.05	2.00	0.88	5.00	0.00	0.00	0.00
27.10	2.00	0.88	5.00	0.00	0.00	0.00
27.15	2.00	0.88	5.00	0.00	0.00	0.00
27.20	2.00	0.88	5.00	0.00	0.00	0.00
27.25	2.00	0.88	5.00	0.00	0.00	0.00
27.30	2.00	0.88	5.00	0.00	0.00	0.00
27.35	2.00	0.88	5.00	0.00	0.00	0.00
27.40	2.00	0.88	5.00	0.00	0.00	0.00
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27.50	2.00	0.88	5.00	0.00	0.00	0.00
27.55	2.00	0.88	5.00	0.00	0.00	0.00
27.60	2.00	0.88	5.00	0.00	0.00	0.00
27.65	2.00	0.88	5.00	0.00	0.00	0.00
27.70	2.00	0.88	5.00	0.00	0.00	0.00
27.75	2.00	0.88	5.00	0.00	0.00	0.00
27.80	2.00	0.88	5.00	0.00	0.00	0.00
27.85	2.00	0.88	5.00	0.00	0.00	0.00
27.90	2.00	0.89	5.00	0.00	0.00	0.00
27.95	2.00	0.89	5.00	0.00	0.00	0.00
28.00	2.00	0.89	5.00	0.00	0.00	0.00
28.05	2.00	0.89	5.00	0.00	0.00	0.00
28.10	2.00	0.89	5.00	0.00	0.00	0.00
28.15	2.00	0.89	5.00	0.00	0.00	0.00
28.20	2.00	0.89	5.00	0.00	0.00	0.00
28.25	2.00	0.89	5.00	0.00	0.00	0.00
28.30	2.00	0.89	5.00	0.00	0.00	0.00
28.35	2.00	0.89	5.00	0.00	0.00	0.00
28.40	2.00	0.89	5.00	0.00	0.00	0.00
28.45	2.00	0.89	5.00	0.00	0.00	0.00
28.50	2.00	0.89	5.00	0.00	0.00	0.00
28.55	2.00	0.89	5.00	0.00	0.00	0.00
28.60	2.00	0.89	5.00	0.00	0.00	0.00
28.65	2.00	0.89	5.00	0.00	0.00	0.00
28.70	2.00	0.89	5.00	0.00	0.00	0.00
28.75	2.00	0.89	5.00	0.00	0.00	0.00
28.80	2.00	0.89	5.00	0.00	0.00	0.00
28.85	2.00	0.89	5.00	0.00	0.00	0.00
28.90	2.00	0.89	5.00	0.00	0.00	0.00
28.95	2.00	0.89	5.00	0.00	0.00	0.00
29.00	2.00	0.89	5.00	0.00	0.00	0.00
29.05	2.00	0.89	5.00	0.00	0.00	0.00
29.10	2.00	0.89	5.00	0.00	0.00	0.00
29.15	2.00	0.89	5.00	0.00	0.00	0.00
29.20	2.00	0.89	5.00	0.00	0.00	0.00
29.25	2.00	0.89	5.00	0.00	0.00	0.00
29.30	2.00	0.89	5.00	0.00	0.00	0.00
29.35	2.00	0.89	5.00	0.00	0.00	0.00
29.40	2.00	0.89	5.00	0.00	0.00	0.00
29.45	2.00	0.89	5.00	0.00	0.00	0.00
29.50	2.00	0.89	5.00	0.00	0.00	0.00
29.55	2.00	0.89	5.00	0.00	0.00	0.00
29.60	2.00	0.89	5.00	0.00	0.00	0.00
29.65	2.00	0.89	5.00	0.00	0.00	0.00
29.70	2.00	0.89	5.00	0.00	0.00	0.00
29.75	2.00	0.89	5.00	0.00	0.00	0.00
29.80	2.00	0.89	5.00	0.00	0.00	0.00
29.85	2.00	0.90	5.00	0.00	0.00	0.00
29.90	2.00	0.90	5.00	0.00	0.00	0.00
29.95	2.00	0.90	5.00	0.00	0.00	0.00
30.00	2.00	0.90	5.00	0.00	0.00	0.00

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* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft; Settlement = in.

1 atm (atmosphere) = 1 tsf (ton/ft2)

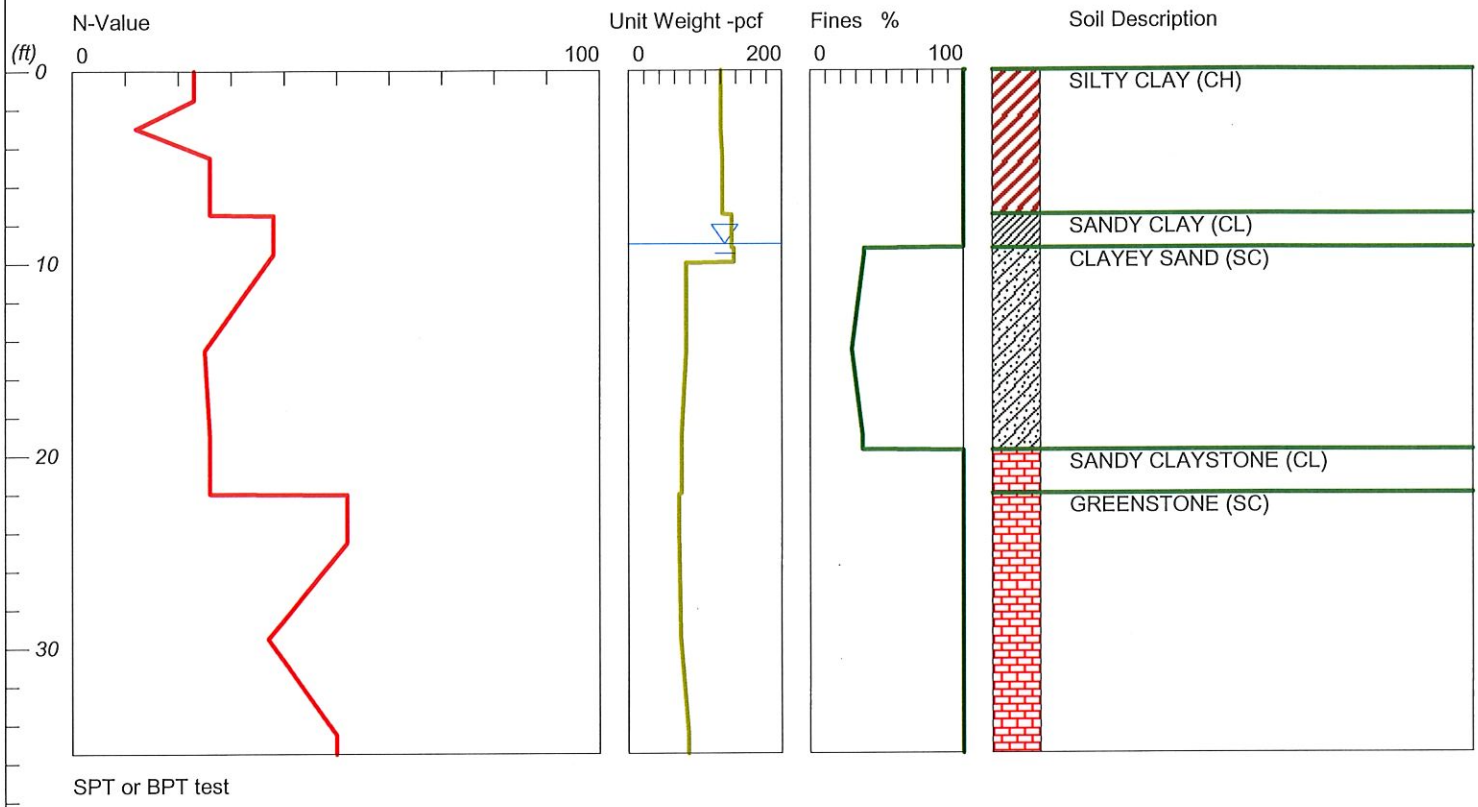
CRRm	Cyclic resistance ratio from soils
CSRsf	Cyclic stress ratio induced by a given earthquake (with user request factor of safety)
F.S.	Factor of Safety against liquefaction, F.S.=CRRm/CSRsf
S_sat	Settlement from saturated sands
S_dry	Settlement from Unsaturated Sands
S_all	Total Settlement from Saturated and Unsaturated Sands
NoLiq	No-Liquefy Soils

LIQUEFACTION ANALYSIS

VETERANS MEMORIAL SENIOR CENTER AND YMCA COMPLEX

Hole No.=EB-5 Water Depth=9.00 ft

Magnitude=8.50
Acceleration=0.741g

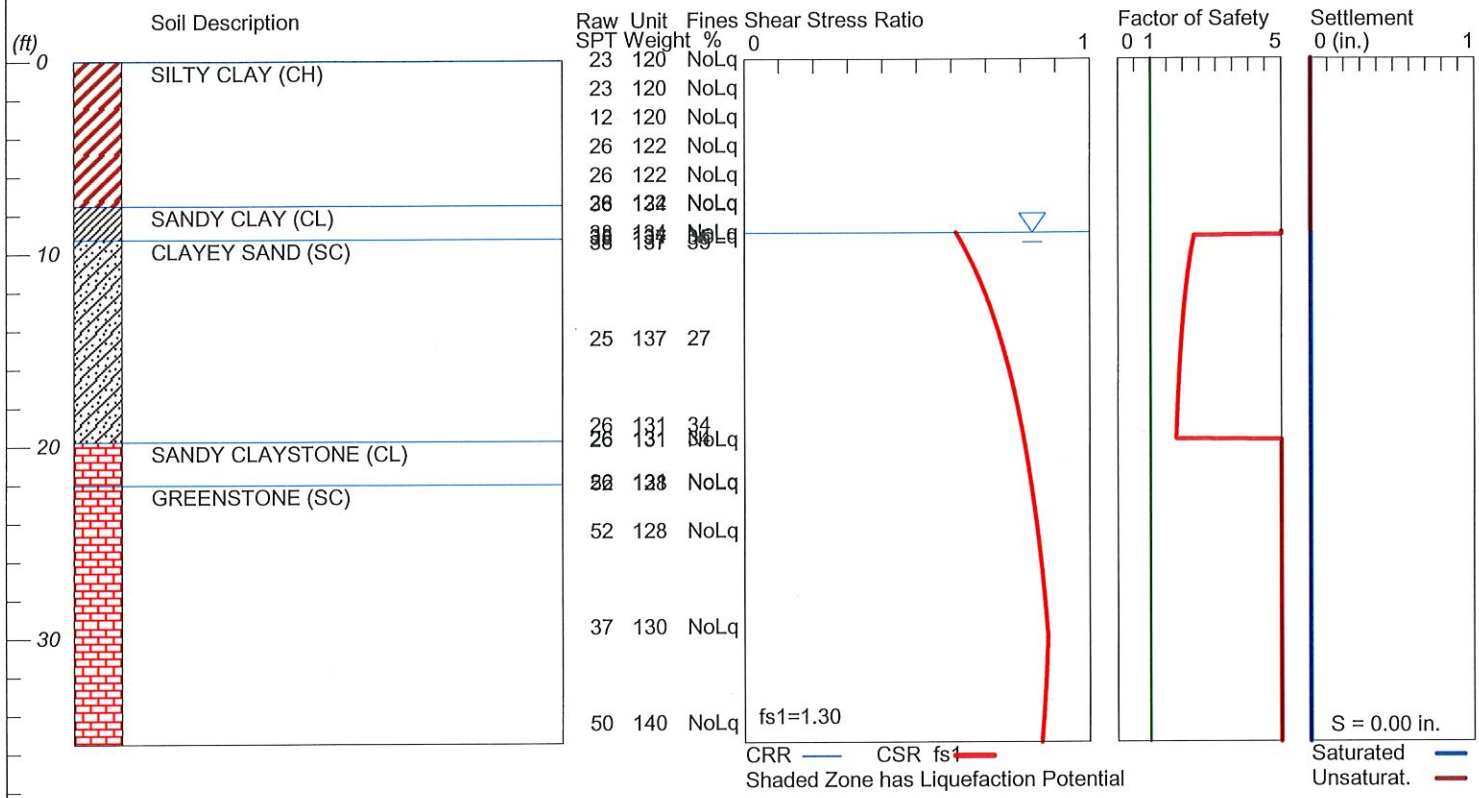


LIQUEFACTION ANALYSIS

VETERANS MEMORIAL SENIOR CENTER AND YMCA COMPLEX

Hole No.=EB-5 Water Depth=9.00 ft

Magnitude=8.50
Acceleration=0.741g



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LIQUEFACTION ANALYSIS SUMMARY
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Input File Name: \\CCISERVER\Shared Folders\Rough Drafts\Grant Foster Rough Drafts\Liquefy Pro Data Files grant\1398.1 Redwood City, Veterans Memorial Senior Center and YMCA Complex, EB-5.liq
Title: VETERANS MEMORIAL SENIOR CENTER AND YMCA COMPLEX
Subtitle: City of Redwood City

Surface Elev.=
Hole No.=EB-5
Depth of Hole= 35.50 ft
Water Table during Earthquake= 9.00 ft
Water Table during In-Situ Testing= 10.00 ft
Max. Acceleration= 0.74 g
Earthquake Magnitude= 8.50

Input Data:
Surface Elev.=
Hole No.=EB-5
Depth of Hole=35.50 ft
Water Table during Earthquake= 9.00 ft
Water Table during In-Situ Testing= 10.00 ft
Max. Acceleration=0.74 g
Earthquake Magnitude=8.50
No-Liquefiable Soils: Based on Analysis

1. SPT or BPT Calculation.
2. Settlement Analysis Method: Tokimatsu, M-correction
3. Fines Correction for Liquefaction: Idriss/Seed
4. Fine Correction for Settlement: During Liquefaction*
5. Settlement Calculation in: All zones*
6. Hammer Energy Ratio, Ce = 1.25
7. Borehole Diameter, Cb= 1
8. Sampling Method, Cs= 1
9. User request factor of safety (apply to CSR) , User= 1.3
   Plot one CSR curve (fs1=User)
10. Use Curve Smoothing: Yes*
* Recommended Options

In-Situ Test Data:

Depth ft	SPT	gamma pcf	Fines %
0.00	23.00	120.00	NoLiq
1.50	23.00	120.00	NoLiq
3.00	12.00	120.00	NoLiq
4.50	26.00	122.00	NoLiq
6.00	26.00	122.00	NoLiq
7.45	26.00	122.00	NoLiq
7.50	38.00	134.00	NoLiq
9.00	38.00	134.00	NoLiq
9.20	38.00	134.00	NoLiq
9.25	38.00	137.00	35.00
9.50	38.00	137.00	35.00
14.50	25.00	137.00	27.00
19.00	26.00	131.00	34.00
19.70	26.00	131.00	34.00
19.75	26.00	131.00	NoLiq
21.95	26.00	131.00	NoLiq
22.00	52.00	128.00	NoLiq
24.50	52.00	128.00	NoLiq
29.50	37.00	130.00	NoLiq
34.50	50.00	140.00	NoLiq

Output Results:
Settlement of Saturated Sands=0.00 in.
Settlement of Unsaturated Sands=0.00 in.
Total Settlement of Saturated and Unsaturated Sands=0.00 in.

Differential Settlement=0.000 to 0.000 in.

Depth ft	CRRm	CSRfs	F.S.	S_sat. in.	S_dry in.	S_all in.
0.00	2.00	0.63	5.00	0.00	0.00	0.00
0.05	2.00	0.63	5.00	0.00	0.00	0.00
0.10	2.00	0.63	5.00	0.00	0.00	0.00
0.15	2.00	0.63	5.00	0.00	0.00	0.00
0.20	2.00	0.63	5.00	0.00	0.00	0.00
0.25	2.00	0.63	5.00	0.00	0.00	0.00
0.30	2.00	0.63	5.00	0.00	0.00	0.00
0.35	2.00	0.63	5.00	0.00	0.00	0.00
0.40	2.00	0.63	5.00	0.00	0.00	0.00
0.45	2.00	0.63	5.00	0.00	0.00	0.00
0.50	2.00	0.63	5.00	0.00	0.00	0.00
0.55	2.00	0.63	5.00	0.00	0.00	0.00
0.60	2.00	0.63	5.00	0.00	0.00	0.00
0.65	2.00	0.63	5.00	0.00	0.00	0.00
0.70	2.00	0.63	5.00	0.00	0.00	0.00
0.75	2.00	0.63	5.00	0.00	0.00	0.00
0.80	2.00	0.62	5.00	0.00	0.00	0.00
0.85	2.00	0.62	5.00	0.00	0.00	0.00
0.90	2.00	0.62	5.00	0.00	0.00	0.00
0.95	2.00	0.62	5.00	0.00	0.00	0.00
1.00	2.00	0.62	5.00	0.00	0.00	0.00
1.05	2.00	0.62	5.00	0.00	0.00	0.00
1.10	2.00	0.62	5.00	0.00	0.00	0.00
1.15	2.00	0.62	5.00	0.00	0.00	0.00
1.20	2.00	0.62	5.00	0.00	0.00	0.00
1.25	2.00	0.62	5.00	0.00	0.00	0.00
1.30	2.00	0.62	5.00	0.00	0.00	0.00
1.35	2.00	0.62	5.00	0.00	0.00	0.00
1.40	2.00	0.62	5.00	0.00	0.00	0.00
1.45	2.00	0.62	5.00	0.00	0.00	0.00
1.50	2.00	0.62	5.00	0.00	0.00	0.00
1.55	2.00	0.62	5.00	0.00	0.00	0.00
1.60	2.00	0.62	5.00	0.00	0.00	0.00
1.65	2.00	0.62	5.00	0.00	0.00	0.00
1.70	2.00	0.62	5.00	0.00	0.00	0.00
1.75	2.00	0.62	5.00	0.00	0.00	0.00
1.80	2.00	0.62	5.00	0.00	0.00	0.00
1.85	2.00	0.62	5.00	0.00	0.00	0.00
1.90	2.00	0.62	5.00	0.00	0.00	0.00
1.95	2.00	0.62	5.00	0.00	0.00	0.00
2.00	2.00	0.62	5.00	0.00	0.00	0.00
2.05	2.00	0.62	5.00	0.00	0.00	0.00
2.10	2.00	0.62	5.00	0.00	0.00	0.00
2.15	2.00	0.62	5.00	0.00	0.00	0.00
2.20	2.00	0.62	5.00	0.00	0.00	0.00
2.25	2.00	0.62	5.00	0.00	0.00	0.00
2.30	2.00	0.62	5.00	0.00	0.00	0.00
2.35	2.00	0.62	5.00	0.00	0.00	0.00
2.40	2.00	0.62	5.00	0.00	0.00	0.00
2.45	2.00	0.62	5.00	0.00	0.00	0.00
2.50	2.00	0.62	5.00	0.00	0.00	0.00
2.55	2.00	0.62	5.00	0.00	0.00	0.00
2.60	2.00	0.62	5.00	0.00	0.00	0.00
2.65	2.00	0.62	5.00	0.00	0.00	0.00
2.70	2.00	0.62	5.00	0.00	0.00	0.00
2.75	2.00	0.62	5.00	0.00	0.00	0.00
2.80	2.00	0.62	5.00	0.00	0.00	0.00
2.85	2.00	0.62	5.00	0.00	0.00	0.00
2.90	2.00	0.62	5.00	0.00	0.00	0.00
2.95	2.00	0.62	5.00	0.00	0.00	0.00
3.00	2.00	0.62	5.00	0.00	0.00	0.00
3.05	2.00	0.62	5.00	0.00	0.00	0.00
3.10	2.00	0.62	5.00	0.00	0.00	0.00
3.15	2.00	0.62	5.00	0.00	0.00	0.00
3.20	2.00	0.62	5.00	0.00	0.00	0.00
3.25	2.00	0.62	5.00	0.00	0.00	0.00
3.30	2.00	0.62	5.00	0.00	0.00	0.00
3.35	2.00	0.62	5.00	0.00	0.00	0.00
3.40	2.00	0.62	5.00	0.00	0.00	0.00
3.45	2.00	0.62	5.00	0.00	0.00	0.00
3.50	2.00	0.62	5.00	0.00	0.00	0.00

3.55	2.00	0.62	5.00	0.00	0.00	0.00
3.60	2.00	0.62	5.00	0.00	0.00	0.00
3.65	2.00	0.62	5.00	0.00	0.00	0.00
3.70	2.00	0.62	5.00	0.00	0.00	0.00
3.75	2.00	0.62	5.00	0.00	0.00	0.00
3.80	2.00	0.62	5.00	0.00	0.00	0.00
3.85	2.00	0.62	5.00	0.00	0.00	0.00
3.90	2.00	0.62	5.00	0.00	0.00	0.00
3.95	2.00	0.62	5.00	0.00	0.00	0.00
4.00	2.00	0.62	5.00	0.00	0.00	0.00
4.05	2.00	0.62	5.00	0.00	0.00	0.00
4.10	2.00	0.62	5.00	0.00	0.00	0.00
4.15	2.00	0.62	5.00	0.00	0.00	0.00
4.20	2.00	0.62	5.00	0.00	0.00	0.00
4.25	2.00	0.62	5.00	0.00	0.00	0.00
4.30	2.00	0.62	5.00	0.00	0.00	0.00
4.35	2.00	0.62	5.00	0.00	0.00	0.00
4.40	2.00	0.62	5.00	0.00	0.00	0.00
4.45	2.00	0.62	5.00	0.00	0.00	0.00
4.50	2.00	0.62	5.00	0.00	0.00	0.00
4.55	2.00	0.62	5.00	0.00	0.00	0.00
4.60	2.00	0.62	5.00	0.00	0.00	0.00
4.65	2.00	0.62	5.00	0.00	0.00	0.00
4.70	2.00	0.62	5.00	0.00	0.00	0.00
4.75	2.00	0.62	5.00	0.00	0.00	0.00
4.80	2.00	0.62	5.00	0.00	0.00	0.00
4.85	2.00	0.62	5.00	0.00	0.00	0.00
4.90	2.00	0.62	5.00	0.00	0.00	0.00
4.95	2.00	0.62	5.00	0.00	0.00	0.00
5.00	2.00	0.62	5.00	0.00	0.00	0.00
5.05	2.00	0.62	5.00	0.00	0.00	0.00
5.10	2.00	0.62	5.00	0.00	0.00	0.00
5.15	2.00	0.62	5.00	0.00	0.00	0.00
5.20	2.00	0.62	5.00	0.00	0.00	0.00
5.25	2.00	0.62	5.00	0.00	0.00	0.00
5.30	2.00	0.62	5.00	0.00	0.00	0.00
5.35	2.00	0.62	5.00	0.00	0.00	0.00
5.40	2.00	0.62	5.00	0.00	0.00	0.00
5.45	2.00	0.62	5.00	0.00	0.00	0.00
5.50	2.00	0.62	5.00	0.00	0.00	0.00
5.55	2.00	0.62	5.00	0.00	0.00	0.00
5.60	2.00	0.62	5.00	0.00	0.00	0.00
5.65	2.00	0.62	5.00	0.00	0.00	0.00
5.70	2.00	0.62	5.00	0.00	0.00	0.00
5.75	2.00	0.62	5.00	0.00	0.00	0.00
5.80	2.00	0.62	5.00	0.00	0.00	0.00
5.85	2.00	0.62	5.00	0.00	0.00	0.00
5.90	2.00	0.62	5.00	0.00	0.00	0.00
5.95	2.00	0.62	5.00	0.00	0.00	0.00
6.00	2.00	0.62	5.00	0.00	0.00	0.00
6.05	2.00	0.62	5.00	0.00	0.00	0.00
6.10	2.00	0.62	5.00	0.00	0.00	0.00
6.15	2.00	0.62	5.00	0.00	0.00	0.00
6.20	2.00	0.62	5.00	0.00	0.00	0.00
6.25	2.00	0.62	5.00	0.00	0.00	0.00
6.30	2.00	0.62	5.00	0.00	0.00	0.00
6.35	2.00	0.62	5.00	0.00	0.00	0.00
6.40	2.00	0.62	5.00	0.00	0.00	0.00
6.45	2.00	0.62	5.00	0.00	0.00	0.00
6.50	2.00	0.62	5.00	0.00	0.00	0.00
6.55	2.00	0.62	5.00	0.00	0.00	0.00
6.60	2.00	0.62	5.00	0.00	0.00	0.00
6.65	2.00	0.62	5.00	0.00	0.00	0.00
6.70	2.00	0.62	5.00	0.00	0.00	0.00
6.75	2.00	0.62	5.00	0.00	0.00	0.00
6.80	2.00	0.62	5.00	0.00	0.00	0.00
6.85	2.00	0.62	5.00	0.00	0.00	0.00
6.90	2.00	0.62	5.00	0.00	0.00	0.00
6.95	2.00	0.62	5.00	0.00	0.00	0.00
7.00	2.00	0.62	5.00	0.00	0.00	0.00
7.05	2.00	0.62	5.00	0.00	0.00	0.00
7.10	2.00	0.62	5.00	0.00	0.00	0.00
7.15	2.00	0.62	5.00	0.00	0.00	0.00
7.20	2.00	0.62	5.00	0.00	0.00	0.00
7.25	2.00	0.62	5.00	0.00	0.00	0.00
7.30	2.00	0.62	5.00	0.00	0.00	0.00

7.35	2.00	0.62	5.00	0.00	0.00	0.00
7.40	2.00	0.62	5.00	0.00	0.00	0.00
7.45	2.00	0.62	5.00	0.00	0.00	0.00
7.50	2.00	0.62	5.00	0.00	0.00	0.00
7.55	2.00	0.62	5.00	0.00	0.00	0.00
7.60	2.00	0.62	5.00	0.00	0.00	0.00
7.65	2.00	0.61	5.00	0.00	0.00	0.00
7.70	2.00	0.61	5.00	0.00	0.00	0.00
7.75	2.00	0.61	5.00	0.00	0.00	0.00
7.80	2.00	0.61	5.00	0.00	0.00	0.00
7.85	2.00	0.61	5.00	0.00	0.00	0.00
7.90	2.00	0.61	5.00	0.00	0.00	0.00
7.95	2.00	0.61	5.00	0.00	0.00	0.00
8.00	2.00	0.61	5.00	0.00	0.00	0.00
8.05	2.00	0.61	5.00	0.00	0.00	0.00
8.10	2.00	0.61	5.00	0.00	0.00	0.00
8.15	2.00	0.61	5.00	0.00	0.00	0.00
8.20	2.00	0.61	5.00	0.00	0.00	0.00
8.25	2.00	0.61	5.00	0.00	0.00	0.00
8.30	2.00	0.61	5.00	0.00	0.00	0.00
8.35	2.00	0.61	5.00	0.00	0.00	0.00
8.40	2.00	0.61	5.00	0.00	0.00	0.00
8.45	2.00	0.61	5.00	0.00	0.00	0.00
8.50	2.00	0.61	5.00	0.00	0.00	0.00
8.55	2.00	0.61	5.00	0.00	0.00	0.00
8.60	2.00	0.61	5.00	0.00	0.00	0.00
8.65	2.00	0.61	5.00	0.00	0.00	0.00
8.70	2.00	0.61	5.00	0.00	0.00	0.00
8.75	2.00	0.61	5.00	0.00	0.00	0.00
8.80	2.00	0.61	5.00	0.00	0.00	0.00
8.85	2.00	0.61	5.00	0.00	0.00	0.00
8.90	2.00	0.61	5.00	0.00	0.00	0.00
8.95	2.00	0.61	5.00	0.00	0.00	0.00
9.00	2.00	0.61	5.00	0.00	0.00	0.00
9.05	2.00	0.61	5.00	0.00	0.00	0.00
9.10	2.00	0.62	5.00	0.00	0.00	0.00
9.15	2.00	0.62	5.00	0.00	0.00	0.00
9.20	1.45	0.62	2.34	0.00	0.00	0.00
9.25	1.45	0.62	2.34	0.00	0.00	0.00
9.30	1.45	0.62	2.33	0.00	0.00	0.00
9.35	1.45	0.62	2.32	0.00	0.00	0.00
9.40	1.45	0.63	2.32	0.00	0.00	0.00
9.45	1.45	0.63	2.31	0.00	0.00	0.00
9.50	1.45	0.63	2.31	0.00	0.00	0.00
9.55	1.45	0.63	2.30	0.00	0.00	0.00
9.60	1.45	0.63	2.30	0.00	0.00	0.00
9.65	1.45	0.63	2.29	0.00	0.00	0.00
9.70	1.45	0.64	2.29	0.00	0.00	0.00
9.75	1.45	0.64	2.28	0.00	0.00	0.00
9.80	1.45	0.64	2.27	0.00	0.00	0.00
9.85	1.45	0.64	2.27	0.00	0.00	0.00
9.90	1.45	0.64	2.26	0.00	0.00	0.00
9.95	1.45	0.64	2.26	0.00	0.00	0.00
10.00	1.45	0.64	2.25	0.00	0.00	0.00
10.05	1.45	0.65	2.25	0.00	0.00	0.00
10.10	1.45	0.65	2.24	0.00	0.00	0.00
10.15	1.45	0.65	2.24	0.00	0.00	0.00
10.20	1.45	0.65	2.23	0.00	0.00	0.00
10.25	1.45	0.65	2.23	0.00	0.00	0.00
10.30	1.45	0.65	2.22	0.00	0.00	0.00
10.35	1.45	0.65	2.22	0.00	0.00	0.00
10.40	1.45	0.65	2.22	0.00	0.00	0.00
10.45	1.45	0.66	2.21	0.00	0.00	0.00
10.50	1.45	0.66	2.21	0.00	0.00	0.00
10.55	1.45	0.66	2.20	0.00	0.00	0.00
10.60	1.45	0.66	2.20	0.00	0.00	0.00
10.65	1.45	0.66	2.19	0.00	0.00	0.00
10.70	1.45	0.66	2.19	0.00	0.00	0.00
10.75	1.45	0.66	2.18	0.00	0.00	0.00
10.80	1.45	0.67	2.18	0.00	0.00	0.00
10.85	1.45	0.67	2.18	0.00	0.00	0.00
10.90	1.45	0.67	2.17	0.00	0.00	0.00
10.95	1.45	0.67	2.17	0.00	0.00	0.00
11.00	1.45	0.67	2.16	0.00	0.00	0.00
11.05	1.45	0.67	2.16	0.00	0.00	0.00
11.10	1.45	0.67	2.16	0.00	0.00	0.00

11.15	1.45	0.67	2.15	0.00	0.00	0.00
11.20	1.45	0.68	2.15	0.00	0.00	0.00
11.25	1.45	0.68	2.14	0.00	0.00	0.00
11.30	1.45	0.68	2.14	0.00	0.00	0.00
11.35	1.45	0.68	2.14	0.00	0.00	0.00
11.40	1.45	0.68	2.13	0.00	0.00	0.00
11.45	1.45	0.68	2.13	0.00	0.00	0.00
11.50	1.45	0.68	2.13	0.00	0.00	0.00
11.55	1.45	0.68	2.12	0.00	0.00	0.00
11.60	1.45	0.69	2.12	0.00	0.00	0.00
11.65	1.45	0.69	2.11	0.00	0.00	0.00
11.70	1.45	0.69	2.11	0.00	0.00	0.00
11.75	1.45	0.69	2.11	0.00	0.00	0.00
11.80	1.45	0.69	2.10	0.00	0.00	0.00
11.85	1.45	0.69	2.10	0.00	0.00	0.00
11.90	1.45	0.69	2.10	0.00	0.00	0.00
11.95	1.45	0.69	2.09	0.00	0.00	0.00
12.00	1.45	0.69	2.09	0.00	0.00	0.00
12.05	1.45	0.70	2.09	0.00	0.00	0.00
12.10	1.45	0.70	2.08	0.00	0.00	0.00
12.15	1.45	0.70	2.08	0.00	0.00	0.00
12.20	1.45	0.70	2.08	0.00	0.00	0.00
12.25	1.45	0.70	2.07	0.00	0.00	0.00
12.30	1.45	0.70	2.07	0.00	0.00	0.00
12.35	1.45	0.70	2.07	0.00	0.00	0.00
12.40	1.45	0.70	2.06	0.00	0.00	0.00
12.45	1.45	0.70	2.06	0.00	0.00	0.00
12.50	1.45	0.70	2.06	0.00	0.00	0.00
12.55	1.45	0.71	2.06	0.00	0.00	0.00
12.60	1.45	0.71	2.05	0.00	0.00	0.00
12.65	1.45	0.71	2.05	0.00	0.00	0.00
12.70	1.45	0.71	2.05	0.00	0.00	0.00
12.75	1.45	0.71	2.04	0.00	0.00	0.00
12.80	1.45	0.71	2.04	0.00	0.00	0.00
12.85	1.45	0.71	2.04	0.00	0.00	0.00
12.90	1.45	0.71	2.04	0.00	0.00	0.00
12.95	1.45	0.71	2.03	0.00	0.00	0.00
13.00	1.45	0.71	2.03	0.00	0.00	0.00
13.05	1.45	0.72	2.03	0.00	0.00	0.00
13.10	1.45	0.72	2.02	0.00	0.00	0.00
13.15	1.45	0.72	2.02	0.00	0.00	0.00
13.20	1.45	0.72	2.02	0.00	0.00	0.00
13.25	1.45	0.72	2.02	0.00	0.00	0.00
13.30	1.45	0.72	2.01	0.00	0.00	0.00
13.35	1.45	0.72	2.01	0.00	0.00	0.00
13.40	1.45	0.72	2.01	0.00	0.00	0.00
13.45	1.45	0.72	2.01	0.00	0.00	0.00
13.50	1.45	0.72	2.00	0.00	0.00	0.00
13.55	1.45	0.73	2.00	0.00	0.00	0.00
13.60	1.45	0.73	2.00	0.00	0.00	0.00
13.65	1.45	0.73	2.00	0.00	0.00	0.00
13.70	1.45	0.73	1.99	0.00	0.00	0.00
13.75	1.45	0.73	1.99	0.00	0.00	0.00
13.80	1.45	0.73	1.99	0.00	0.00	0.00
13.85	1.45	0.73	1.99	0.00	0.00	0.00
13.90	1.45	0.73	1.98	0.00	0.00	0.00
13.95	1.45	0.73	1.98	0.00	0.00	0.00
14.00	1.45	0.73	1.98	0.00	0.00	0.00
14.05	1.45	0.73	1.98	0.00	0.00	0.00
14.10	1.45	0.74	1.97	0.00	0.00	0.00
14.15	1.45	0.74	1.97	0.00	0.00	0.00
14.20	1.45	0.74	1.97	0.00	0.00	0.00
14.25	1.45	0.74	1.97	0.00	0.00	0.00
14.30	1.45	0.74	1.97	0.00	0.00	0.00
14.35	1.45	0.74	1.96	0.00	0.00	0.00
14.40	1.45	0.74	1.96	0.00	0.00	0.00
14.45	1.45	0.74	1.96	0.00	0.00	0.00
14.50	1.45	0.74	1.96	0.00	0.00	0.00
14.55	1.45	0.74	1.95	0.00	0.00	0.00
14.60	1.45	0.74	1.95	0.00	0.00	0.00
14.65	1.45	0.74	1.95	0.00	0.00	0.00
14.70	1.45	0.74	1.95	0.00	0.00	0.00
14.75	1.45	0.75	1.95	0.00	0.00	0.00
14.80	1.45	0.75	1.94	0.00	0.00	0.00
14.85	1.45	0.75	1.94	0.00	0.00	0.00
14.90	1.45	0.75	1.94	0.00	0.00	0.00

14.95	1.45	0.75	1.94	0.00	0.00	0.00
15.00	1.45	0.75	1.94	0.00	0.00	0.00
15.05	1.45	0.75	1.93	0.00	0.00	0.00
15.10	1.45	0.75	1.93	0.00	0.00	0.00
15.15	1.45	0.75	1.93	0.00	0.00	0.00
15.20	1.45	0.75	1.93	0.00	0.00	0.00
15.25	1.45	0.75	1.93	0.00	0.00	0.00
15.30	1.45	0.75	1.92	0.00	0.00	0.00
15.35	1.45	0.76	1.92	0.00	0.00	0.00
15.40	1.45	0.76	1.92	0.00	0.00	0.00
15.45	1.45	0.76	1.92	0.00	0.00	0.00
15.50	1.45	0.76	1.92	0.00	0.00	0.00
15.55	1.45	0.76	1.91	0.00	0.00	0.00
15.60	1.45	0.76	1.91	0.00	0.00	0.00
15.65	1.45	0.76	1.91	0.00	0.00	0.00
15.70	1.45	0.76	1.91	0.00	0.00	0.00
15.75	1.45	0.76	1.91	0.00	0.00	0.00
15.80	1.45	0.76	1.91	0.00	0.00	0.00
15.85	1.45	0.76	1.90	0.00	0.00	0.00
15.90	1.45	0.76	1.90	0.00	0.00	0.00
15.95	1.45	0.76	1.90	0.00	0.00	0.00
16.00	1.45	0.76	1.90	0.00	0.00	0.00
16.05	1.45	0.77	1.90	0.00	0.00	0.00
16.10	1.45	0.77	1.89	0.00	0.00	0.00
16.15	1.45	0.77	1.89	0.00	0.00	0.00
16.20	1.45	0.77	1.89	0.00	0.00	0.00
16.25	1.45	0.77	1.89	0.00	0.00	0.00
16.30	1.45	0.77	1.89	0.00	0.00	0.00
16.35	1.45	0.77	1.89	0.00	0.00	0.00
16.40	1.45	0.77	1.88	0.00	0.00	0.00
16.45	1.45	0.77	1.88	0.00	0.00	0.00
16.50	1.45	0.77	1.88	0.00	0.00	0.00
16.55	1.45	0.77	1.88	0.00	0.00	0.00
16.60	1.45	0.77	1.88	0.00	0.00	0.00
16.65	1.45	0.77	1.88	0.00	0.00	0.00
16.70	1.45	0.77	1.87	0.00	0.00	0.00
16.75	1.45	0.77	1.87	0.00	0.00	0.00
16.80	1.45	0.78	1.87	0.00	0.00	0.00
16.85	1.45	0.78	1.87	0.00	0.00	0.00
16.90	1.45	0.78	1.87	0.00	0.00	0.00
16.95	1.45	0.78	1.87	0.00	0.00	0.00
17.00	1.45	0.78	1.87	0.00	0.00	0.00
17.05	1.45	0.78	1.86	0.00	0.00	0.00
17.10	1.45	0.78	1.86	0.00	0.00	0.00
17.15	1.45	0.78	1.86	0.00	0.00	0.00
17.20	1.45	0.78	1.86	0.00	0.00	0.00
17.25	1.45	0.78	1.86	0.00	0.00	0.00
17.30	1.45	0.78	1.86	0.00	0.00	0.00
17.35	1.45	0.78	1.86	0.00	0.00	0.00
17.40	1.45	0.78	1.85	0.00	0.00	0.00
17.45	1.45	0.78	1.85	0.00	0.00	0.00
17.50	1.45	0.78	1.85	0.00	0.00	0.00
17.55	1.45	0.78	1.85	0.00	0.00	0.00
17.60	1.45	0.79	1.85	0.00	0.00	0.00
17.65	1.45	0.79	1.85	0.00	0.00	0.00
17.70	1.45	0.79	1.85	0.00	0.00	0.00
17.75	1.45	0.79	1.84	0.00	0.00	0.00
17.80	1.45	0.79	1.84	0.00	0.00	0.00
17.85	1.45	0.79	1.84	0.00	0.00	0.00
17.90	1.45	0.79	1.84	0.00	0.00	0.00
17.95	1.45	0.79	1.84	0.00	0.00	0.00
18.00	1.45	0.79	1.84	0.00	0.00	0.00
18.05	1.45	0.79	1.84	0.00	0.00	0.00
18.10	1.45	0.79	1.83	0.00	0.00	0.00
18.15	1.45	0.79	1.83	0.00	0.00	0.00
18.20	1.45	0.79	1.83	0.00	0.00	0.00
18.25	1.45	0.79	1.83	0.00	0.00	0.00
18.30	1.45	0.79	1.83	0.00	0.00	0.00
18.35	1.45	0.79	1.83	0.00	0.00	0.00
18.40	1.45	0.79	1.83	0.00	0.00	0.00
18.45	1.45	0.80	1.82	0.00	0.00	0.00
18.50	1.45	0.80	1.82	0.00	0.00	0.00
18.55	1.45	0.80	1.82	0.00	0.00	0.00
18.60	1.45	0.80	1.82	0.00	0.00	0.00
18.65	1.45	0.80	1.82	0.00	0.00	0.00
18.70	1.45	0.80	1.82	0.00	0.00	0.00

18.75	1.45	0.80	1.82	0.00	0.00	0.00
18.80	1.45	0.80	1.82	0.00	0.00	0.00
18.85	1.45	0.80	1.81	0.00	0.00	0.00
18.90	1.45	0.80	1.81	0.00	0.00	0.00
18.95	1.45	0.80	1.81	0.00	0.00	0.00
19.00	1.45	0.80	1.81	0.00	0.00	0.00
19.05	1.45	0.80	1.81	0.00	0.00	0.00
19.10	1.45	0.80	1.81	0.00	0.00	0.00
19.15	1.45	0.80	1.81	0.00	0.00	0.00
19.20	1.45	0.80	1.81	0.00	0.00	0.00
19.25	1.45	0.80	1.81	0.00	0.00	0.00
19.30	1.45	0.80	1.80	0.00	0.00	0.00
19.35	1.45	0.81	1.80	0.00	0.00	0.00
19.40	1.45	0.81	1.80	0.00	0.00	0.00
19.45	1.45	0.81	1.80	0.00	0.00	0.00
19.50	1.45	0.81	1.80	0.00	0.00	0.00
19.55	1.45	0.81	1.80	0.00	0.00	0.00
19.60	1.45	0.81	1.80	0.00	0.00	0.00
19.65	1.45	0.81	1.80	0.00	0.00	0.00
19.70	1.45	0.81	1.79	0.00	0.00	0.00
19.75	1.45	0.81	1.79	0.00	0.00	0.00
19.80	2.00	0.81	5.00	0.00	0.00	0.00
19.85	2.00	0.81	5.00	0.00	0.00	0.00
19.90	2.00	0.81	5.00	0.00	0.00	0.00
19.95	2.00	0.81	5.00	0.00	0.00	0.00
20.00	2.00	0.81	5.00	0.00	0.00	0.00
20.05	2.00	0.81	5.00	0.00	0.00	0.00
20.10	2.00	0.81	5.00	0.00	0.00	0.00
20.15	2.00	0.81	5.00	0.00	0.00	0.00
20.20	2.00	0.81	5.00	0.00	0.00	0.00
20.25	2.00	0.81	5.00	0.00	0.00	0.00
20.30	2.00	0.81	5.00	0.00	0.00	0.00
20.35	2.00	0.81	5.00	0.00	0.00	0.00
20.40	2.00	0.82	5.00	0.00	0.00	0.00
20.45	2.00	0.82	5.00	0.00	0.00	0.00
20.50	2.00	0.82	5.00	0.00	0.00	0.00
20.55	2.00	0.82	5.00	0.00	0.00	0.00
20.60	2.00	0.82	5.00	0.00	0.00	0.00
20.65	2.00	0.82	5.00	0.00	0.00	0.00
20.70	2.00	0.82	5.00	0.00	0.00	0.00
20.75	2.00	0.82	5.00	0.00	0.00	0.00
20.80	2.00	0.82	5.00	0.00	0.00	0.00
20.85	2.00	0.82	5.00	0.00	0.00	0.00
20.90	2.00	0.82	5.00	0.00	0.00	0.00
20.95	2.00	0.82	5.00	0.00	0.00	0.00
21.00	2.00	0.82	5.00	0.00	0.00	0.00
21.05	2.00	0.82	5.00	0.00	0.00	0.00
21.10	2.00	0.82	5.00	0.00	0.00	0.00
21.15	2.00	0.82	5.00	0.00	0.00	0.00
21.20	2.00	0.82	5.00	0.00	0.00	0.00
21.25	2.00	0.82	5.00	0.00	0.00	0.00
21.30	2.00	0.82	5.00	0.00	0.00	0.00
21.35	2.00	0.82	5.00	0.00	0.00	0.00
21.40	2.00	0.82	5.00	0.00	0.00	0.00
21.45	2.00	0.82	5.00	0.00	0.00	0.00
21.50	2.00	0.83	5.00	0.00	0.00	0.00
21.55	2.00	0.83	5.00	0.00	0.00	0.00
21.60	2.00	0.83	5.00	0.00	0.00	0.00
21.65	2.00	0.83	5.00	0.00	0.00	0.00
21.70	2.00	0.83	5.00	0.00	0.00	0.00
21.75	2.00	0.83	5.00	0.00	0.00	0.00
21.80	2.00	0.83	5.00	0.00	0.00	0.00
21.85	2.00	0.83	5.00	0.00	0.00	0.00
21.90	2.00	0.83	5.00	0.00	0.00	0.00
21.95	2.00	0.83	5.00	0.00	0.00	0.00
22.00	2.00	0.83	5.00	0.00	0.00	0.00
22.05	2.00	0.83	5.00	0.00	0.00	0.00
22.10	2.00	0.83	5.00	0.00	0.00	0.00
22.15	2.00	0.83	5.00	0.00	0.00	0.00
22.20	2.00	0.83	5.00	0.00	0.00	0.00
22.25	2.00	0.83	5.00	0.00	0.00	0.00
22.30	2.00	0.83	5.00	0.00	0.00	0.00
22.35	2.00	0.83	5.00	0.00	0.00	0.00
22.40	2.00	0.83	5.00	0.00	0.00	0.00
22.45	2.00	0.83	5.00	0.00	0.00	0.00
22.50	2.00	0.83	5.00	0.00	0.00	0.00

22.55	2.00	0.83	5.00	0.00	0.00	0.00
22.60	2.00	0.83	5.00	0.00	0.00	0.00
22.65	2.00	0.83	5.00	0.00	0.00	0.00
22.70	2.00	0.84	5.00	0.00	0.00	0.00
22.75	2.00	0.84	5.00	0.00	0.00	0.00
22.80	2.00	0.84	5.00	0.00	0.00	0.00
22.85	2.00	0.84	5.00	0.00	0.00	0.00
22.90	2.00	0.84	5.00	0.00	0.00	0.00
22.95	2.00	0.84	5.00	0.00	0.00	0.00
23.00	2.00	0.84	5.00	0.00	0.00	0.00
23.05	2.00	0.84	5.00	0.00	0.00	0.00
23.10	2.00	0.84	5.00	0.00	0.00	0.00
23.15	2.00	0.84	5.00	0.00	0.00	0.00
23.20	2.00	0.84	5.00	0.00	0.00	0.00
23.25	2.00	0.84	5.00	0.00	0.00	0.00
23.30	2.00	0.84	5.00	0.00	0.00	0.00
23.35	2.00	0.84	5.00	0.00	0.00	0.00
23.40	2.00	0.84	5.00	0.00	0.00	0.00
23.45	2.00	0.84	5.00	0.00	0.00	0.00
23.50	2.00	0.84	5.00	0.00	0.00	0.00
23.55	2.00	0.84	5.00	0.00	0.00	0.00
23.60	2.00	0.84	5.00	0.00	0.00	0.00
23.65	2.00	0.84	5.00	0.00	0.00	0.00
23.70	2.00	0.84	5.00	0.00	0.00	0.00
23.75	2.00	0.84	5.00	0.00	0.00	0.00
23.80	2.00	0.84	5.00	0.00	0.00	0.00
23.85	2.00	0.84	5.00	0.00	0.00	0.00
23.90	2.00	0.84	5.00	0.00	0.00	0.00
23.95	2.00	0.84	5.00	0.00	0.00	0.00
24.00	2.00	0.85	5.00	0.00	0.00	0.00
24.05	2.00	0.85	5.00	0.00	0.00	0.00
24.10	2.00	0.85	5.00	0.00	0.00	0.00
24.15	2.00	0.85	5.00	0.00	0.00	0.00
24.20	2.00	0.85	5.00	0.00	0.00	0.00
24.25	2.00	0.85	5.00	0.00	0.00	0.00
24.30	2.00	0.85	5.00	0.00	0.00	0.00
24.35	2.00	0.85	5.00	0.00	0.00	0.00
24.40	2.00	0.85	5.00	0.00	0.00	0.00
24.45	2.00	0.85	5.00	0.00	0.00	0.00
24.50	2.00	0.85	5.00	0.00	0.00	0.00
24.55	2.00	0.85	5.00	0.00	0.00	0.00
24.60	2.00	0.85	5.00	0.00	0.00	0.00
24.65	2.00	0.85	5.00	0.00	0.00	0.00
24.70	2.00	0.85	5.00	0.00	0.00	0.00
24.75	2.00	0.85	5.00	0.00	0.00	0.00
24.80	2.00	0.85	5.00	0.00	0.00	0.00
24.85	2.00	0.85	5.00	0.00	0.00	0.00
24.90	2.00	0.85	5.00	0.00	0.00	0.00
24.95	2.00	0.85	5.00	0.00	0.00	0.00
25.00	2.00	0.85	5.00	0.00	0.00	0.00
25.05	2.00	0.85	5.00	0.00	0.00	0.00
25.10	2.00	0.85	5.00	0.00	0.00	0.00
25.15	2.00	0.85	5.00	0.00	0.00	0.00
25.20	2.00	0.85	5.00	0.00	0.00	0.00
25.25	2.00	0.85	5.00	0.00	0.00	0.00
25.30	2.00	0.85	5.00	0.00	0.00	0.00
25.35	2.00	0.85	5.00	0.00	0.00	0.00
25.40	2.00	0.85	5.00	0.00	0.00	0.00
25.45	2.00	0.86	5.00	0.00	0.00	0.00
25.50	2.00	0.86	5.00	0.00	0.00	0.00
25.55	2.00	0.86	5.00	0.00	0.00	0.00
25.60	2.00	0.86	5.00	0.00	0.00	0.00
25.65	2.00	0.86	5.00	0.00	0.00	0.00
25.70	2.00	0.86	5.00	0.00	0.00	0.00
25.75	2.00	0.86	5.00	0.00	0.00	0.00
25.80	2.00	0.86	5.00	0.00	0.00	0.00
25.85	2.00	0.86	5.00	0.00	0.00	0.00
25.90	2.00	0.86	5.00	0.00	0.00	0.00
25.95	2.00	0.86	5.00	0.00	0.00	0.00
26.00	2.00	0.86	5.00	0.00	0.00	0.00
26.05	2.00	0.86	5.00	0.00	0.00	0.00
26.10	2.00	0.86	5.00	0.00	0.00	0.00
26.15	2.00	0.86	5.00	0.00	0.00	0.00
26.20	2.00	0.86	5.00	0.00	0.00	0.00
26.25	2.00	0.86	5.00	0.00	0.00	0.00
26.30	2.00	0.86	5.00	0.00	0.00	0.00

26.35	2.00	0.86	5.00	0.00	0.00	0.00
26.40	2.00	0.86	5.00	0.00	0.00	0.00
26.45	2.00	0.86	5.00	0.00	0.00	0.00
26.50	2.00	0.86	5.00	0.00	0.00	0.00
26.55	2.00	0.86	5.00	0.00	0.00	0.00
26.60	2.00	0.86	5.00	0.00	0.00	0.00
26.65	2.00	0.86	5.00	0.00	0.00	0.00
26.70	2.00	0.86	5.00	0.00	0.00	0.00
26.75	2.00	0.86	5.00	0.00	0.00	0.00
26.80	2.00	0.86	5.00	0.00	0.00	0.00
26.85	2.00	0.86	5.00	0.00	0.00	0.00
26.90	2.00	0.86	5.00	0.00	0.00	0.00
26.95	2.00	0.86	5.00	0.00	0.00	0.00
27.00	2.00	0.86	5.00	0.00	0.00	0.00
27.05	2.00	0.86	5.00	0.00	0.00	0.00
27.10	2.00	0.86	5.00	0.00	0.00	0.00
27.15	2.00	0.86	5.00	0.00	0.00	0.00
27.20	2.00	0.87	5.00	0.00	0.00	0.00
27.25	2.00	0.87	5.00	0.00	0.00	0.00
27.30	2.00	0.87	5.00	0.00	0.00	0.00
27.35	2.00	0.87	5.00	0.00	0.00	0.00
27.40	2.00	0.87	5.00	0.00	0.00	0.00
27.45	2.00	0.87	5.00	0.00	0.00	0.00
27.50	2.00	0.87	5.00	0.00	0.00	0.00
27.55	2.00	0.87	5.00	0.00	0.00	0.00
27.60	2.00	0.87	5.00	0.00	0.00	0.00
27.65	2.00	0.87	5.00	0.00	0.00	0.00
27.70	2.00	0.87	5.00	0.00	0.00	0.00
27.75	2.00	0.87	5.00	0.00	0.00	0.00
27.80	2.00	0.87	5.00	0.00	0.00	0.00
27.85	2.00	0.87	5.00	0.00	0.00	0.00
27.90	2.00	0.87	5.00	0.00	0.00	0.00
27.95	2.00	0.87	5.00	0.00	0.00	0.00
28.00	2.00	0.87	5.00	0.00	0.00	0.00
28.05	2.00	0.87	5.00	0.00	0.00	0.00
28.10	2.00	0.87	5.00	0.00	0.00	0.00
28.15	2.00	0.87	5.00	0.00	0.00	0.00
28.20	2.00	0.87	5.00	0.00	0.00	0.00
28.25	2.00	0.87	5.00	0.00	0.00	0.00
28.30	2.00	0.87	5.00	0.00	0.00	0.00
28.35	2.00	0.87	5.00	0.00	0.00	0.00
28.40	2.00	0.87	5.00	0.00	0.00	0.00
28.45	2.00	0.87	5.00	0.00	0.00	0.00
28.50	2.00	0.87	5.00	0.00	0.00	0.00
28.55	2.00	0.87	5.00	0.00	0.00	0.00
28.60	2.00	0.87	5.00	0.00	0.00	0.00
28.65	2.00	0.87	5.00	0.00	0.00	0.00
28.70	2.00	0.87	5.00	0.00	0.00	0.00
28.75	2.00	0.87	5.00	0.00	0.00	0.00
28.80	2.00	0.87	5.00	0.00	0.00	0.00
28.85	2.00	0.87	5.00	0.00	0.00	0.00
28.90	2.00	0.87	5.00	0.00	0.00	0.00
28.95	2.00	0.87	5.00	0.00	0.00	0.00
29.00	2.00	0.87	5.00	0.00	0.00	0.00
29.05	2.00	0.87	5.00	0.00	0.00	0.00
29.10	2.00	0.87	5.00	0.00	0.00	0.00
29.15	2.00	0.87	5.00	0.00	0.00	0.00
29.20	2.00	0.88	5.00	0.00	0.00	0.00
29.25	2.00	0.88	5.00	0.00	0.00	0.00
29.30	2.00	0.88	5.00	0.00	0.00	0.00
29.35	2.00	0.88	5.00	0.00	0.00	0.00
29.40	2.00	0.88	5.00	0.00	0.00	0.00
29.45	2.00	0.88	5.00	0.00	0.00	0.00
29.50	2.00	0.88	5.00	0.00	0.00	0.00
29.55	2.00	0.88	5.00	0.00	0.00	0.00
29.60	2.00	0.88	5.00	0.00	0.00	0.00
29.65	2.00	0.88	5.00	0.00	0.00	0.00
29.70	2.00	0.88	5.00	0.00	0.00	0.00
29.75	2.00	0.88	5.00	0.00	0.00	0.00
29.80	2.00	0.88	5.00	0.00	0.00	0.00
29.85	2.00	0.88	5.00	0.00	0.00	0.00
29.90	2.00	0.88	5.00	0.00	0.00	0.00
29.95	2.00	0.88	5.00	0.00	0.00	0.00
30.00	2.00	0.88	5.00	0.00	0.00	0.00
30.05	2.00	0.88	5.00	0.00	0.00	0.00
30.10	2.00	0.88	5.00	0.00	0.00	0.00

30.15	2.00	0.88	5.00	0.00	0.00	0.00
30.20	2.00	0.88	5.00	0.00	0.00	0.00
30.25	2.00	0.88	5.00	0.00	0.00	0.00
30.30	2.00	0.88	5.00	0.00	0.00	0.00
30.35	2.00	0.88	5.00	0.00	0.00	0.00
30.40	2.00	0.88	5.00	0.00	0.00	0.00
30.45	2.00	0.88	5.00	0.00	0.00	0.00
30.50	2.00	0.88	5.00	0.00	0.00	0.00
30.55	2.00	0.88	5.00	0.00	0.00	0.00
30.60	2.00	0.88	5.00	0.00	0.00	0.00
30.65	2.00	0.88	5.00	0.00	0.00	0.00
30.70	2.00	0.88	5.00	0.00	0.00	0.00
30.75	2.00	0.88	5.00	0.00	0.00	0.00
30.80	2.00	0.88	5.00	0.00	0.00	0.00
30.85	2.00	0.88	5.00	0.00	0.00	0.00
30.90	2.00	0.88	5.00	0.00	0.00	0.00
30.95	2.00	0.88	5.00	0.00	0.00	0.00
31.00	2.00	0.88	5.00	0.00	0.00	0.00
31.05	2.00	0.88	5.00	0.00	0.00	0.00
31.10	2.00	0.88	5.00	0.00	0.00	0.00
31.15	2.00	0.88	5.00	0.00	0.00	0.00
31.20	2.00	0.88	5.00	0.00	0.00	0.00
31.25	2.00	0.88	5.00	0.00	0.00	0.00
31.30	2.00	0.88	5.00	0.00	0.00	0.00
31.35	2.00	0.88	5.00	0.00	0.00	0.00
31.40	2.00	0.88	5.00	0.00	0.00	0.00
31.45	2.00	0.88	5.00	0.00	0.00	0.00
31.50	2.00	0.88	5.00	0.00	0.00	0.00
31.55	2.00	0.88	5.00	0.00	0.00	0.00
31.60	2.00	0.88	5.00	0.00	0.00	0.00
31.65	2.00	0.87	5.00	0.00	0.00	0.00
31.70	2.00	0.87	5.00	0.00	0.00	0.00
31.75	2.00	0.87	5.00	0.00	0.00	0.00
31.80	2.00	0.87	5.00	0.00	0.00	0.00
31.85	2.00	0.87	5.00	0.00	0.00	0.00
31.90	2.00	0.87	5.00	0.00	0.00	0.00
31.95	2.00	0.87	5.00	0.00	0.00	0.00
32.00	2.00	0.87	5.00	0.00	0.00	0.00
32.05	2.00	0.87	5.00	0.00	0.00	0.00
32.10	2.00	0.87	5.00	0.00	0.00	0.00
32.15	2.00	0.87	5.00	0.00	0.00	0.00
32.20	2.00	0.87	5.00	0.00	0.00	0.00
32.25	2.00	0.87	5.00	0.00	0.00	0.00
32.30	2.00	0.87	5.00	0.00	0.00	0.00
32.35	2.00	0.87	5.00	0.00	0.00	0.00
32.40	2.00	0.87	5.00	0.00	0.00	0.00
32.45	2.00	0.87	5.00	0.00	0.00	0.00
32.50	2.00	0.87	5.00	0.00	0.00	0.00
32.55	2.00	0.87	5.00	0.00	0.00	0.00
32.60	2.00	0.87	5.00	0.00	0.00	0.00
32.65	2.00	0.87	5.00	0.00	0.00	0.00
32.70	2.00	0.87	5.00	0.00	0.00	0.00
32.75	2.00	0.87	5.00	0.00	0.00	0.00
32.80	2.00	0.87	5.00	0.00	0.00	0.00
32.85	2.00	0.87	5.00	0.00	0.00	0.00
32.90	2.00	0.87	5.00	0.00	0.00	0.00
32.95	2.00	0.87	5.00	0.00	0.00	0.00
33.00	2.00	0.87	5.00	0.00	0.00	0.00
33.05	2.00	0.87	5.00	0.00	0.00	0.00
33.10	2.00	0.87	5.00	0.00	0.00	0.00
33.15	2.00	0.87	5.00	0.00	0.00	0.00
33.20	2.00	0.87	5.00	0.00	0.00	0.00
33.25	2.00	0.87	5.00	0.00	0.00	0.00
33.30	2.00	0.87	5.00	0.00	0.00	0.00
33.35	2.00	0.87	5.00	0.00	0.00	0.00
33.40	2.00	0.87	5.00	0.00	0.00	0.00
33.45	2.00	0.87	5.00	0.00	0.00	0.00
33.50	2.00	0.87	5.00	0.00	0.00	0.00
33.55	2.00	0.87	5.00	0.00	0.00	0.00
33.60	2.00	0.87	5.00	0.00	0.00	0.00
33.65	2.00	0.87	5.00	0.00	0.00	0.00
33.70	2.00	0.87	5.00	0.00	0.00	0.00
33.75	2.00	0.87	5.00	0.00	0.00	0.00
33.80	2.00	0.87	5.00	0.00	0.00	0.00
33.85	2.00	0.87	5.00	0.00	0.00	0.00
33.90	2.00	0.87	5.00	0.00	0.00	0.00

33.95	2.00	0.87	5.00	0.00	0.00	0.00
34.00	2.00	0.87	5.00	0.00	0.00	0.00
34.05	2.00	0.87	5.00	0.00	0.00	0.00
34.10	2.00	0.87	5.00	0.00	0.00	0.00
34.15	2.00	0.87	5.00	0.00	0.00	0.00
34.20	2.00	0.87	5.00	0.00	0.00	0.00
34.25	2.00	0.87	5.00	0.00	0.00	0.00
34.30	2.00	0.87	5.00	0.00	0.00	0.00
34.35	2.00	0.87	5.00	0.00	0.00	0.00
34.40	2.00	0.87	5.00	0.00	0.00	0.00
34.45	2.00	0.87	5.00	0.00	0.00	0.00
34.50	2.00	0.87	5.00	0.00	0.00	0.00
34.55	2.00	0.87	5.00	0.00	0.00	0.00
34.60	2.00	0.87	5.00	0.00	0.00	0.00
34.65	2.00	0.86	5.00	0.00	0.00	0.00
34.70	2.00	0.86	5.00	0.00	0.00	0.00
34.75	2.00	0.86	5.00	0.00	0.00	0.00
34.80	2.00	0.86	5.00	0.00	0.00	0.00
34.85	2.00	0.86	5.00	0.00	0.00	0.00
34.90	2.00	0.86	5.00	0.00	0.00	0.00
34.95	2.00	0.86	5.00	0.00	0.00	0.00
35.00	2.00	0.86	5.00	0.00	0.00	0.00
35.05	2.00	0.86	5.00	0.00	0.00	0.00
35.10	2.00	0.86	5.00	0.00	0.00	0.00
35.15	2.00	0.86	5.00	0.00	0.00	0.00
35.20	2.00	0.86	5.00	0.00	0.00	0.00
35.25	2.00	0.86	5.00	0.00	0.00	0.00
35.30	2.00	0.86	5.00	0.00	0.00	0.00
35.35	2.00	0.86	5.00	0.00	0.00	0.00
35.40	2.00	0.86	5.00	0.00	0.00	0.00
35.45	2.00	0.86	5.00	0.00	0.00	0.00
35.50	2.00	0.86	5.00	0.00	0.00	0.00

* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft; Settlement = in.

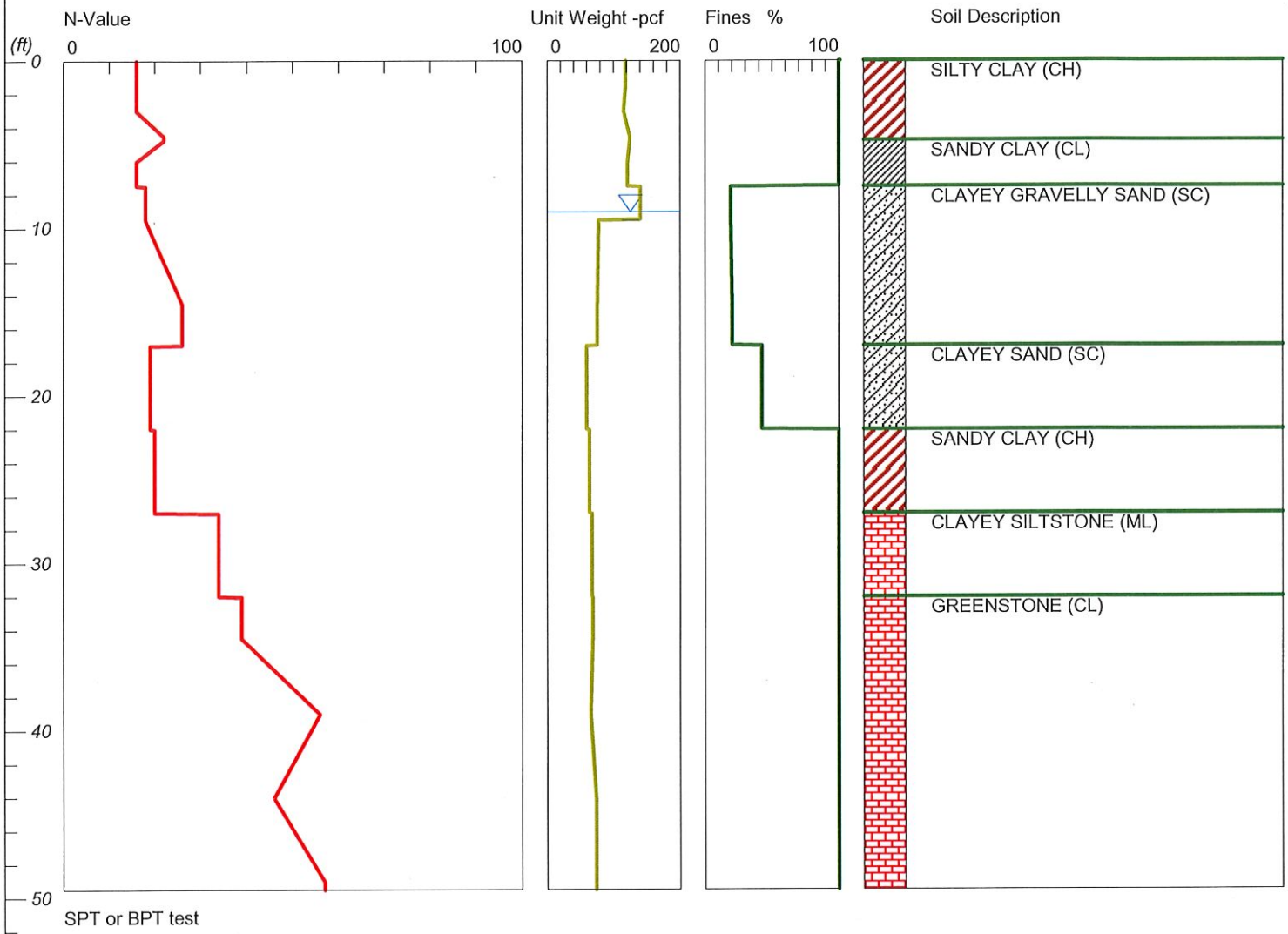
1 atm (atmosphere) = 1 tsf (ton/ft2)
CRRm Cyclic resistance ratio from soils
CSRsf Cyclic stress ratio induced by a given earthquake (with user request factor of safety)
F.S. Factor of Safety against liquefaction, F.S.=CRRm/CSRsf
S_sat Settlement from saturated sands
S_dry Settlement from Unsaturated Sands
S_all Total Settlement from Saturated and Unsaturated Sands
NoLiq No-Liquefy Soils

LIQUEFACTION ANALYSIS

VETERANS MEMORIAL SENIOR CENTER AND YMCA COMPLEX

Hole No.=EB-8 Water Depth=9.00 ft

Magnitude=8.50
Acceleration=0.741g

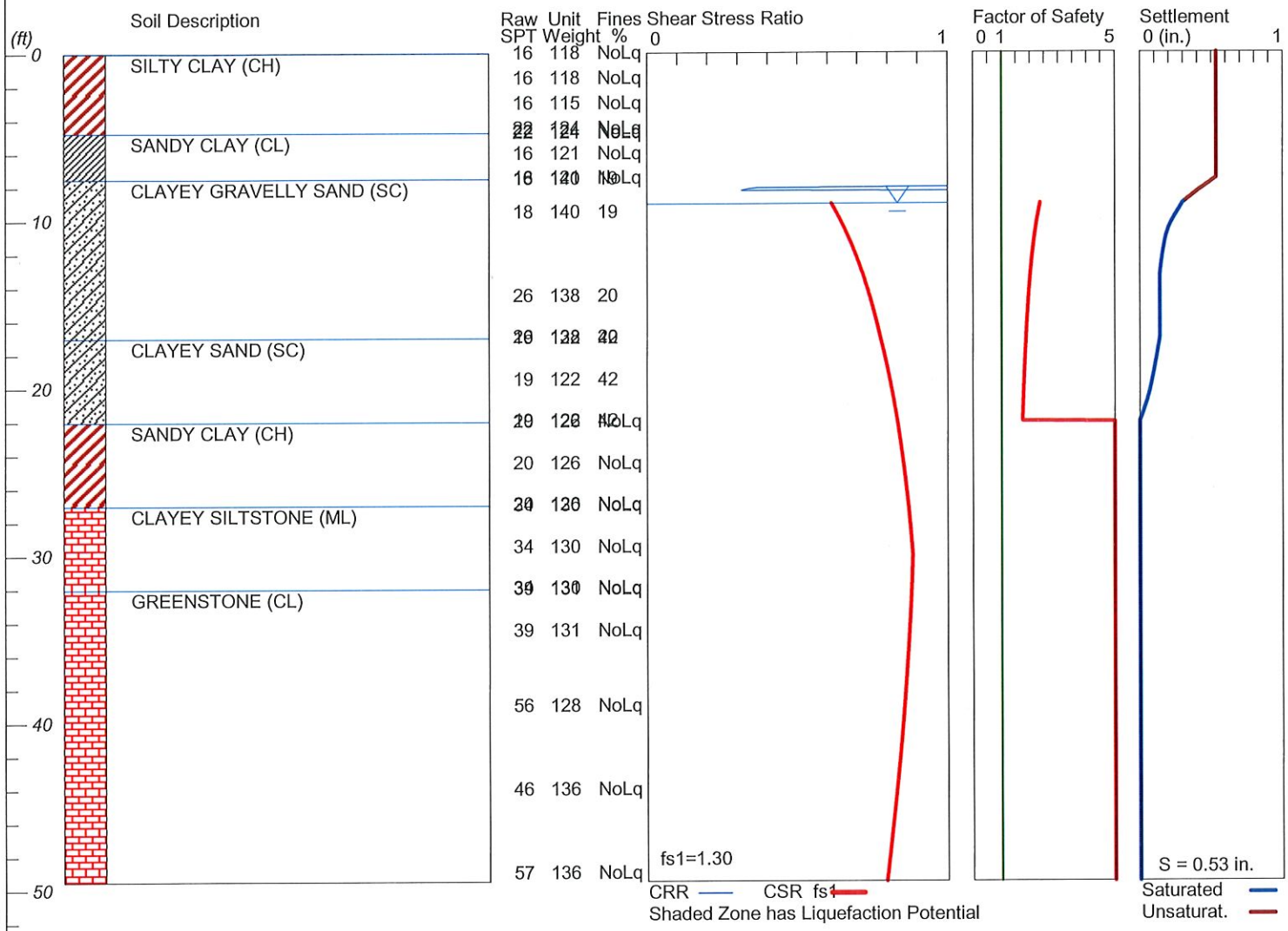


LIQUEFACTION ANALYSIS

VETERANS MEMORIAL SENIOR CENTER AND YMCA COMPLEX

Hole No.=EB-8 Water Depth=9.00 ft

Magnitude=8.50
Acceleration=0.741g



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LIQUEFACTION ANALYSIS SUMMARY
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Input File Name: \\CCISERVER\Shared Folders\Rough Drafts\Grant Foster Rough Drafts\Liquefy Pro Data Files grant\1398.1 Redwood City, Veterans Memorial Senior Center and YMCA Complex, EB-8.liq
Title: VETERANS MEMORIAL SENIOR CENTER AND YMCA COMPLEX
Subtitle: City of Redwood City

Surface Elev.=
Hole No.=EB-8
Depth of Hole= 49.50 ft
Water Table during Earthquake= 9.00 ft
Water Table during In-Situ Testing= 9.50 ft
Max. Acceleration= 0.74 g
Earthquake Magnitude= 8.50

Input Data:
Surface Elev.=
Hole No.=EB-8
Depth of Hole=49.50 ft
Water Table during Earthquake= 9.00 ft
Water Table during In-Situ Testing= 9.50 ft
Max. Acceleration=0.74 g
Earthquake Magnitude=8.50
No-Liquefiable Soils: Based on Analysis

1. SPT or BPT Calculation.
2. Settlement Analysis Method: Tokimatsu, M-correction
3. Fines Correction for Liquefaction: Idriss/Seed
4. Fine Correction for Settlement: During Liquefaction*
5. Settlement Calculation in: All zones*
6. Hammer Energy Ratio, Ce = 1.25
7. Borehole Diameter, Cb= 1
8. Sampling Method, Cs= 1
9. User request factor of safety (apply to CSR) , User= 1.3
   Plot one CSR curve (fs1=User)
10. Use Curve Smoothing: Yes*

* Recommended Options

In-Situ Test Data:

Depth ft	SPT	gamma pcf	Fines %
0.00	16.00	118.00	NoLiq
1.50	16.00	118.00	NoLiq
3.00	16.00	115.00	NoLiq
4.50	22.00	124.00	NoLiq
4.70	22.00	124.00	NoLiq
4.75	22.00	124.00	NoLiq
6.00	16.00	121.00	NoLiq
7.45	16.00	121.00	NoLiq
7.50	18.00	140.00	19.00
9.50	18.00	140.00	19.00
14.50	26.00	138.00	20.00
16.95	26.00	138.00	20.00
17.00	19.00	122.00	42.00
19.50	19.00	122.00	42.00
21.95	19.00	122.00	42.00
22.00	20.00	126.00	NoLiq
24.50	20.00	126.00	NoLiq
26.95	20.00	126.00	NoLiq
27.00	34.00	130.00	NoLiq
29.50	34.00	130.00	NoLiq
31.95	34.00	130.00	NoLiq
32.00	39.00	131.00	NoLiq
34.50	39.00	131.00	NoLiq
39.00	56.00	128.00	NoLiq
44.00	46.00	136.00	NoLiq
49.00	57.00	136.00	NoLiq

Output Results:

Settlement of Saturated Sands=0.30 in.
Settlement of Unsaturated Sands=0.24 in.
Total Settlement of Saturated and Unsaturated Sands=0.53 in.
Differential Settlement=0.267 to 0.353 in.

Depth ft	CRRm	CSRfs	F.S.	S_sat. in.	S_dry in.	S_all in.
0.00	2.00	0.63	5.00	0.30	0.24	0.53
0.05	2.00	0.63	5.00	0.30	0.24	0.53
0.10	2.00	0.63	5.00	0.30	0.24	0.53
0.15	2.00	0.63	5.00	0.30	0.24	0.53
0.20	2.00	0.63	5.00	0.30	0.24	0.53
0.25	2.00	0.63	5.00	0.30	0.24	0.53
0.30	2.00	0.63	5.00	0.30	0.24	0.53
0.35	2.00	0.63	5.00	0.30	0.24	0.53
0.40	2.00	0.63	5.00	0.30	0.24	0.53
0.45	2.00	0.63	5.00	0.30	0.24	0.53
0.50	2.00	0.63	5.00	0.30	0.24	0.53
0.55	2.00	0.63	5.00	0.30	0.24	0.53
0.60	2.00	0.63	5.00	0.30	0.24	0.53
0.65	2.00	0.63	5.00	0.30	0.24	0.53
0.70	2.00	0.63	5.00	0.30	0.24	0.53
0.75	2.00	0.63	5.00	0.30	0.24	0.53
0.80	2.00	0.62	5.00	0.30	0.24	0.53
0.85	2.00	0.62	5.00	0.30	0.24	0.53
0.90	2.00	0.62	5.00	0.30	0.24	0.53
0.95	2.00	0.62	5.00	0.30	0.24	0.53
1.00	2.00	0.62	5.00	0.30	0.24	0.53
1.05	2.00	0.62	5.00	0.30	0.24	0.53
1.10	2.00	0.62	5.00	0.30	0.24	0.53
1.15	2.00	0.62	5.00	0.30	0.24	0.53
1.20	2.00	0.62	5.00	0.30	0.24	0.53
1.25	2.00	0.62	5.00	0.30	0.24	0.53
1.30	2.00	0.62	5.00	0.30	0.24	0.53
1.35	2.00	0.62	5.00	0.30	0.24	0.53
1.40	2.00	0.62	5.00	0.30	0.24	0.53
1.45	2.00	0.62	5.00	0.30	0.24	0.53
1.50	2.00	0.62	5.00	0.30	0.24	0.53
1.55	2.00	0.62	5.00	0.30	0.24	0.53
1.60	2.00	0.62	5.00	0.30	0.24	0.53
1.65	2.00	0.62	5.00	0.30	0.24	0.53
1.70	2.00	0.62	5.00	0.30	0.24	0.53
1.75	2.00	0.62	5.00	0.30	0.24	0.53
1.80	2.00	0.62	5.00	0.30	0.24	0.53
1.85	2.00	0.62	5.00	0.30	0.24	0.53
1.90	2.00	0.62	5.00	0.30	0.24	0.53
1.95	2.00	0.62	5.00	0.30	0.24	0.53
2.00	2.00	0.62	5.00	0.30	0.24	0.53
2.05	2.00	0.62	5.00	0.30	0.24	0.53
2.10	2.00	0.62	5.00	0.30	0.24	0.53
2.15	2.00	0.62	5.00	0.30	0.24	0.53
2.20	2.00	0.62	5.00	0.30	0.24	0.53
2.25	2.00	0.62	5.00	0.30	0.24	0.53
2.30	2.00	0.62	5.00	0.30	0.24	0.53
2.35	2.00	0.62	5.00	0.30	0.24	0.53
2.40	2.00	0.62	5.00	0.30	0.24	0.53
2.45	2.00	0.62	5.00	0.30	0.24	0.53
2.50	2.00	0.62	5.00	0.30	0.24	0.53
2.55	2.00	0.62	5.00	0.30	0.24	0.53
2.60	2.00	0.62	5.00	0.30	0.24	0.53
2.65	2.00	0.62	5.00	0.30	0.24	0.53
2.70	2.00	0.62	5.00	0.30	0.24	0.53
2.75	2.00	0.62	5.00	0.30	0.24	0.53
2.80	2.00	0.62	5.00	0.30	0.24	0.53
2.85	2.00	0.62	5.00	0.30	0.24	0.53
2.90	2.00	0.62	5.00	0.30	0.24	0.53
2.95	2.00	0.62	5.00	0.30	0.24	0.53
3.00	2.00	0.62	5.00	0.30	0.24	0.53
3.05	2.00	0.62	5.00	0.30	0.24	0.53
3.10	2.00	0.62	5.00	0.30	0.24	0.53
3.15	2.00	0.62	5.00	0.30	0.24	0.53
3.20	2.00	0.62	5.00	0.30	0.24	0.53

3.25	2.00	0.62	5.00	0.30	0.24	0.53
3.30	2.00	0.62	5.00	0.30	0.24	0.53
3.35	2.00	0.62	5.00	0.30	0.24	0.53
3.40	2.00	0.62	5.00	0.30	0.24	0.53
3.45	2.00	0.62	5.00	0.30	0.24	0.53
3.50	2.00	0.62	5.00	0.30	0.24	0.53
3.55	2.00	0.62	5.00	0.30	0.24	0.53
3.60	2.00	0.62	5.00	0.30	0.24	0.53
3.65	2.00	0.62	5.00	0.30	0.24	0.53
3.70	2.00	0.62	5.00	0.30	0.24	0.53
3.75	2.00	0.62	5.00	0.30	0.24	0.53
3.80	2.00	0.62	5.00	0.30	0.24	0.53
3.85	2.00	0.62	5.00	0.30	0.24	0.53
3.90	2.00	0.62	5.00	0.30	0.24	0.53
3.95	2.00	0.62	5.00	0.30	0.24	0.53
4.00	2.00	0.62	5.00	0.30	0.24	0.53
4.05	2.00	0.62	5.00	0.30	0.24	0.53
4.10	2.00	0.62	5.00	0.30	0.24	0.53
4.15	2.00	0.62	5.00	0.30	0.24	0.53
4.20	2.00	0.62	5.00	0.30	0.24	0.53
4.25	2.00	0.62	5.00	0.30	0.24	0.53
4.30	2.00	0.62	5.00	0.30	0.24	0.53
4.35	2.00	0.62	5.00	0.30	0.24	0.53
4.40	2.00	0.62	5.00	0.30	0.24	0.53
4.45	2.00	0.62	5.00	0.30	0.24	0.53
4.50	2.00	0.62	5.00	0.30	0.24	0.53
4.55	2.00	0.62	5.00	0.30	0.24	0.53
4.60	2.00	0.62	5.00	0.30	0.24	0.53
4.65	2.00	0.62	5.00	0.30	0.24	0.53
4.70	2.00	0.62	5.00	0.30	0.24	0.53
4.75	2.00	0.62	5.00	0.30	0.24	0.53
4.80	2.00	0.62	5.00	0.30	0.24	0.53
4.85	2.00	0.62	5.00	0.30	0.24	0.53
4.90	2.00	0.62	5.00	0.30	0.24	0.53
4.95	2.00	0.62	5.00	0.30	0.24	0.53
5.00	2.00	0.62	5.00	0.30	0.24	0.53
5.05	2.00	0.62	5.00	0.30	0.24	0.53
5.10	2.00	0.62	5.00	0.30	0.24	0.53
5.15	2.00	0.62	5.00	0.30	0.24	0.53
5.20	2.00	0.62	5.00	0.30	0.24	0.53
5.25	2.00	0.62	5.00	0.30	0.24	0.53
5.30	2.00	0.62	5.00	0.30	0.24	0.53
5.35	2.00	0.62	5.00	0.30	0.24	0.53
5.40	2.00	0.62	5.00	0.30	0.24	0.53
5.45	2.00	0.62	5.00	0.30	0.24	0.53
5.50	2.00	0.62	5.00	0.30	0.24	0.53
5.55	2.00	0.62	5.00	0.30	0.24	0.53
5.60	2.00	0.62	5.00	0.30	0.24	0.53
5.65	2.00	0.62	5.00	0.30	0.24	0.53
5.70	2.00	0.62	5.00	0.30	0.24	0.53
5.75	2.00	0.62	5.00	0.30	0.24	0.53
5.80	2.00	0.62	5.00	0.30	0.24	0.53
5.85	2.00	0.62	5.00	0.30	0.24	0.53
5.90	2.00	0.62	5.00	0.30	0.24	0.53
5.95	2.00	0.62	5.00	0.30	0.24	0.53
6.00	2.00	0.62	5.00	0.30	0.24	0.53
6.05	2.00	0.62	5.00	0.30	0.24	0.53
6.10	2.00	0.62	5.00	0.30	0.24	0.53
6.15	2.00	0.62	5.00	0.30	0.24	0.53
6.20	2.00	0.62	5.00	0.30	0.24	0.53
6.25	2.00	0.62	5.00	0.30	0.24	0.53
6.30	2.00	0.62	5.00	0.30	0.24	0.53
6.35	2.00	0.62	5.00	0.30	0.24	0.53
6.40	2.00	0.62	5.00	0.30	0.24	0.53
6.45	2.00	0.62	5.00	0.30	0.24	0.53
6.50	2.00	0.62	5.00	0.30	0.24	0.53
6.55	2.00	0.62	5.00	0.30	0.24	0.53
6.60	2.00	0.62	5.00	0.30	0.24	0.53
6.65	2.00	0.62	5.00	0.30	0.24	0.53
6.70	2.00	0.62	5.00	0.30	0.24	0.53
6.75	2.00	0.62	5.00	0.30	0.24	0.53
6.80	2.00	0.62	5.00	0.30	0.24	0.53
6.85	2.00	0.62	5.00	0.30	0.24	0.53
6.90	2.00	0.62	5.00	0.30	0.24	0.53
6.95	2.00	0.62	5.00	0.30	0.24	0.53
7.00	2.00	0.62	5.00	0.30	0.24	0.53

7.05	2.00	0.62	5.00	0.30	0.24	0.53
7.10	2.00	0.62	5.00	0.30	0.24	0.53
7.15	2.00	0.62	5.00	0.30	0.24	0.53
7.20	2.00	0.62	5.00	0.30	0.24	0.53
7.25	2.00	0.62	5.00	0.30	0.24	0.53
7.30	2.00	0.62	5.00	0.30	0.24	0.53
7.35	2.00	0.62	5.00	0.30	0.24	0.53
7.40	2.00	0.62	5.00	0.30	0.24	0.53
7.45	1.45	0.62	5.00	0.30	0.24	0.53
7.50	1.45	0.62	5.00	0.30	0.24	0.53
7.55	1.45	0.62	5.00	0.30	0.23	0.53
7.60	1.45	0.62	5.00	0.30	0.22	0.52
7.65	1.45	0.61	5.00	0.30	0.21	0.51
7.70	1.45	0.61	5.00	0.30	0.20	0.50
7.75	1.45	0.61	5.00	0.30	0.20	0.49
7.80	1.45	0.61	5.00	0.30	0.19	0.49
7.85	1.45	0.61	5.00	0.30	0.18	0.48
7.90	1.45	0.61	5.00	0.30	0.17	0.47
7.95	1.45	0.61	5.00	0.30	0.16	0.46
8.00	1.45	0.61	5.00	0.30	0.15	0.45
8.05	0.36	0.61	5.00	0.30	0.15	0.44
8.10	0.34	0.61	5.00	0.30	0.14	0.44
8.15	0.32	0.61	5.00	0.30	0.13	0.43
8.20	0.31	0.61	5.00	0.30	0.12	0.42
8.25	1.45	0.61	5.00	0.30	0.11	0.41
8.30	1.45	0.61	5.00	0.30	0.10	0.40
8.35	1.45	0.61	5.00	0.30	0.10	0.40
8.40	1.45	0.61	5.00	0.30	0.09	0.39
8.45	1.45	0.61	5.00	0.30	0.08	0.38
8.50	1.45	0.61	5.00	0.30	0.08	0.37
8.55	1.45	0.61	5.00	0.30	0.07	0.37
8.60	1.45	0.61	5.00	0.30	0.06	0.36
8.65	1.45	0.61	5.00	0.30	0.05	0.35
8.70	1.45	0.61	5.00	0.30	0.05	0.34
8.75	1.45	0.61	5.00	0.30	0.04	0.34
8.80	1.45	0.61	5.00	0.30	0.03	0.33
8.85	1.45	0.61	5.00	0.30	0.02	0.32
8.90	1.45	0.61	5.00	0.30	0.02	0.31
8.95	1.45	0.61	5.00	0.30	0.01	0.31
9.00	1.45	0.61	2.37	0.30	0.00	0.30
9.05	1.45	0.61	2.36	0.29	0.00	0.29
9.10	1.45	0.62	2.35	0.29	0.00	0.29
9.15	1.45	0.62	2.35	0.29	0.00	0.29
9.20	1.45	0.62	2.34	0.28	0.00	0.28
9.25	1.45	0.62	2.34	0.28	0.00	0.28
9.30	1.45	0.62	2.33	0.28	0.00	0.28
9.35	1.45	0.62	2.32	0.27	0.00	0.27
9.40	1.45	0.63	2.32	0.27	0.00	0.27
9.45	1.45	0.63	2.31	0.27	0.00	0.27
9.50	1.45	0.63	2.31	0.26	0.00	0.26
9.55	1.45	0.63	2.30	0.26	0.00	0.26
9.60	1.45	0.63	2.30	0.26	0.00	0.26
9.65	1.45	0.63	2.29	0.25	0.00	0.25
9.70	1.45	0.64	2.29	0.25	0.00	0.25
9.75	1.45	0.64	2.28	0.25	0.00	0.25
9.80	1.45	0.64	2.27	0.24	0.00	0.24
9.85	1.45	0.64	2.27	0.24	0.00	0.24
9.90	1.45	0.64	2.26	0.23	0.00	0.23
9.95	1.45	0.64	2.26	0.23	0.00	0.23
10.00	1.45	0.64	2.25	0.23	0.00	0.23
10.05	1.45	0.65	2.25	0.23	0.00	0.23
10.10	1.45	0.65	2.24	0.22	0.00	0.22
10.15	1.45	0.65	2.24	0.22	0.00	0.22
10.20	1.45	0.65	2.23	0.22	0.00	0.22
10.25	1.45	0.65	2.23	0.21	0.00	0.21
10.30	1.45	0.65	2.23	0.21	0.00	0.21
10.35	1.45	0.65	2.22	0.21	0.00	0.21
10.40	1.45	0.65	2.22	0.21	0.00	0.21
10.45	1.45	0.66	2.21	0.20	0.00	0.20
10.50	1.45	0.66	2.21	0.20	0.00	0.20
10.55	1.45	0.66	2.20	0.20	0.00	0.20
10.60	1.45	0.66	2.20	0.20	0.00	0.20
10.65	1.45	0.66	2.19	0.19	0.00	0.19
10.70	1.45	0.66	2.19	0.19	0.00	0.19
10.75	1.45	0.66	2.19	0.19	0.00	0.19
10.80	1.45	0.67	2.18	0.19	0.00	0.19

10.85	1.45	0.67	2.18	0.19	0.00	0.19
10.90	1.45	0.67	2.17	0.18	0.00	0.18
10.95	1.45	0.67	2.17	0.18	0.00	0.18
11.00	1.45	0.67	2.16	0.18	0.00	0.18
11.05	1.45	0.67	2.16	0.18	0.00	0.18
11.10	1.45	0.67	2.16	0.18	0.00	0.18
11.15	1.45	0.67	2.15	0.18	0.00	0.18
11.20	1.45	0.68	2.15	0.18	0.00	0.18
11.25	1.45	0.68	2.14	0.17	0.00	0.17
11.30	1.45	0.68	2.14	0.17	0.00	0.17
11.35	1.45	0.68	2.14	0.17	0.00	0.17
11.40	1.45	0.68	2.13	0.17	0.00	0.17
11.45	1.45	0.68	2.13	0.17	0.00	0.17
11.50	1.45	0.68	2.13	0.17	0.00	0.17
11.55	1.45	0.68	2.12	0.17	0.00	0.17
11.60	1.45	0.68	2.12	0.17	0.00	0.17
11.65	1.45	0.69	2.12	0.17	0.00	0.17
11.70	1.45	0.69	2.11	0.16	0.00	0.16
11.75	1.45	0.69	2.11	0.16	0.00	0.16
11.80	1.45	0.69	2.11	0.16	0.00	0.16
11.85	1.45	0.69	2.10	0.16	0.00	0.16
11.90	1.45	0.69	2.10	0.16	0.00	0.16
11.95	1.45	0.69	2.10	0.16	0.00	0.16
12.00	1.45	0.69	2.09	0.16	0.00	0.16
12.05	1.45	0.69	2.09	0.16	0.00	0.16
12.10	1.45	0.70	2.09	0.16	0.00	0.16
12.15	1.45	0.70	2.08	0.16	0.00	0.16
12.20	1.45	0.70	2.08	0.15	0.00	0.15
12.25	1.45	0.70	2.08	0.15	0.00	0.15
12.30	1.45	0.70	2.07	0.15	0.00	0.15
12.35	1.45	0.70	2.07	0.15	0.00	0.15
12.40	1.45	0.70	2.07	0.15	0.00	0.15
12.45	1.45	0.70	2.06	0.15	0.00	0.15
12.50	1.45	0.70	2.06	0.15	0.00	0.15
12.55	1.45	0.71	2.06	0.15	0.00	0.15
12.60	1.45	0.71	2.05	0.15	0.00	0.15
12.65	1.45	0.71	2.05	0.15	0.00	0.15
12.70	1.45	0.71	2.05	0.15	0.00	0.15
12.75	1.45	0.71	2.05	0.15	0.00	0.15
12.80	1.45	0.71	2.04	0.15	0.00	0.15
12.85	1.45	0.71	2.04	0.14	0.00	0.14
12.90	1.45	0.71	2.04	0.14	0.00	0.14
12.95	1.45	0.71	2.03	0.14	0.00	0.14
13.00	1.45	0.71	2.03	0.14	0.00	0.14
13.05	1.45	0.72	2.03	0.14	0.00	0.14
13.10	1.45	0.72	2.03	0.14	0.00	0.14
13.15	1.45	0.72	2.02	0.14	0.00	0.14
13.20	1.45	0.72	2.02	0.14	0.00	0.14
13.25	1.45	0.72	2.02	0.14	0.00	0.14
13.30	1.45	0.72	2.02	0.14	0.00	0.14
13.35	1.45	0.72	2.01	0.14	0.00	0.14
13.40	1.45	0.72	2.01	0.14	0.00	0.14
13.45	1.45	0.72	2.01	0.14	0.00	0.14
13.50	1.45	0.72	2.01	0.14	0.00	0.14
13.55	1.45	0.72	2.00	0.14	0.00	0.14
13.60	1.45	0.73	2.00	0.14	0.00	0.14
13.65	1.45	0.73	2.00	0.14	0.00	0.14
13.70	1.45	0.73	2.00	0.14	0.00	0.14
13.75	1.45	0.73	1.99	0.14	0.00	0.14
13.80	1.45	0.73	1.99	0.14	0.00	0.14
13.85	1.45	0.73	1.99	0.14	0.00	0.14
13.90	1.45	0.73	1.99	0.14	0.00	0.14
13.95	1.45	0.73	1.98	0.14	0.00	0.14
14.00	1.45	0.73	1.98	0.14	0.00	0.14
14.05	1.45	0.73	1.98	0.14	0.00	0.14
14.10	1.45	0.73	1.98	0.14	0.00	0.14
14.15	1.45	0.74	1.97	0.14	0.00	0.14
14.20	1.45	0.74	1.97	0.14	0.00	0.14
14.25	1.45	0.74	1.97	0.14	0.00	0.14
14.30	1.45	0.74	1.97	0.14	0.00	0.14
14.35	1.45	0.74	1.97	0.14	0.00	0.14
14.40	1.45	0.74	1.96	0.14	0.00	0.14
14.45	1.45	0.74	1.96	0.14	0.00	0.14
14.50	1.45	0.74	1.96	0.14	0.00	0.14
14.55	1.45	0.74	1.96	0.14	0.00	0.14
14.60	1.45	0.74	1.95	0.14	0.00	0.14

14.65	1.45	0.74	1.95	0.14	0.00	0.14
14.70	1.45	0.74	1.95	0.14	0.00	0.14
14.75	1.45	0.74	1.95	0.14	0.00	0.14
14.80	1.45	0.75	1.95	0.14	0.00	0.14
14.85	1.45	0.75	1.94	0.14	0.00	0.14
14.90	1.45	0.75	1.94	0.14	0.00	0.14
14.95	1.45	0.75	1.94	0.14	0.00	0.14
15.00	1.45	0.75	1.94	0.14	0.00	0.14
15.05	1.45	0.75	1.94	0.14	0.00	0.14
15.10	1.45	0.75	1.93	0.14	0.00	0.14
15.15	1.45	0.75	1.93	0.14	0.00	0.14
15.20	1.45	0.75	1.93	0.14	0.00	0.14
15.25	1.45	0.75	1.93	0.14	0.00	0.14
15.30	1.45	0.75	1.93	0.14	0.00	0.14
15.35	1.45	0.75	1.92	0.14	0.00	0.14
15.40	1.45	0.75	1.92	0.14	0.00	0.14
15.45	1.45	0.76	1.92	0.14	0.00	0.14
15.50	1.45	0.76	1.92	0.14	0.00	0.14
15.55	1.45	0.76	1.92	0.14	0.00	0.14
15.60	1.45	0.76	1.92	0.14	0.00	0.14
15.65	1.45	0.76	1.91	0.14	0.00	0.14
15.70	1.45	0.76	1.91	0.14	0.00	0.14
15.75	1.45	0.76	1.91	0.14	0.00	0.14
15.80	1.45	0.76	1.91	0.14	0.00	0.14
15.85	1.45	0.76	1.91	0.14	0.00	0.14
15.90	1.45	0.76	1.90	0.14	0.00	0.14
15.95	1.45	0.76	1.90	0.14	0.00	0.14
16.00	1.45	0.76	1.90	0.14	0.00	0.14
16.05	1.45	0.76	1.90	0.14	0.00	0.14
16.10	1.45	0.76	1.90	0.14	0.00	0.14
16.15	1.45	0.77	1.90	0.14	0.00	0.14
16.20	1.45	0.77	1.89	0.14	0.00	0.14
16.25	1.45	0.77	1.89	0.14	0.00	0.14
16.30	1.45	0.77	1.89	0.14	0.00	0.14
16.35	1.45	0.77	1.89	0.14	0.00	0.14
16.40	1.45	0.77	1.89	0.14	0.00	0.14
16.45	1.45	0.77	1.89	0.14	0.00	0.14
16.50	1.45	0.77	1.89	0.14	0.00	0.14
16.55	1.45	0.77	1.88	0.14	0.00	0.14
16.60	1.45	0.77	1.88	0.14	0.00	0.14
16.65	1.45	0.77	1.88	0.14	0.00	0.14
16.70	1.45	0.77	1.88	0.14	0.00	0.14
16.75	1.45	0.77	1.88	0.14	0.00	0.14
16.80	1.45	0.77	1.88	0.14	0.00	0.14
16.85	1.45	0.77	1.87	0.14	0.00	0.14
16.90	1.45	0.77	1.87	0.14	0.00	0.14
16.95	1.45	0.78	1.87	0.14	0.00	0.14
17.00	1.45	0.78	1.87	0.14	0.00	0.14
17.05	1.45	0.78	1.87	0.14	0.00	0.14
17.10	1.45	0.78	1.87	0.14	0.00	0.14
17.15	1.45	0.78	1.86	0.14	0.00	0.14
17.20	1.45	0.78	1.86	0.14	0.00	0.14
17.25	1.45	0.78	1.86	0.13	0.00	0.13
17.30	1.45	0.78	1.86	0.13	0.00	0.13
17.35	1.45	0.78	1.86	0.13	0.00	0.13
17.40	1.45	0.78	1.86	0.13	0.00	0.13
17.45	1.45	0.78	1.86	0.13	0.00	0.13
17.50	1.45	0.78	1.85	0.13	0.00	0.13
17.55	1.45	0.78	1.85	0.13	0.00	0.13
17.60	1.45	0.78	1.85	0.13	0.00	0.13
17.65	1.45	0.78	1.85	0.13	0.00	0.13
17.70	1.45	0.79	1.85	0.13	0.00	0.13
17.75	1.45	0.79	1.85	0.12	0.00	0.12
17.80	1.45	0.79	1.84	0.12	0.00	0.12
17.85	1.45	0.79	1.84	0.12	0.00	0.12
17.90	1.45	0.79	1.84	0.12	0.00	0.12
17.95	1.45	0.79	1.84	0.12	0.00	0.12
18.00	1.45	0.79	1.84	0.12	0.00	0.12
18.05	1.45	0.79	1.84	0.12	0.00	0.12
18.10	1.45	0.79	1.84	0.12	0.00	0.12
18.15	1.45	0.79	1.83	0.12	0.00	0.12
18.20	1.45	0.79	1.83	0.11	0.00	0.11
18.25	1.45	0.79	1.83	0.11	0.00	0.11
18.30	1.45	0.79	1.83	0.11	0.00	0.11
18.35	1.45	0.79	1.83	0.11	0.00	0.11
18.40	1.45	0.79	1.83	0.11	0.00	0.11

18.45	1.45	0.80	1.83	0.11	0.00	0.11
18.50	1.45	0.80	1.82	0.11	0.00	0.11
18.55	1.45	0.80	1.82	0.11	0.00	0.11
18.60	1.45	0.80	1.82	0.11	0.00	0.11
18.65	1.45	0.80	1.82	0.11	0.00	0.11
18.70	1.45	0.80	1.82	0.10	0.00	0.10
18.75	1.45	0.80	1.82	0.10	0.00	0.10
18.80	1.45	0.80	1.82	0.10	0.00	0.10
18.85	1.45	0.80	1.81	0.10	0.00	0.10
18.90	1.45	0.80	1.81	0.10	0.00	0.10
18.95	1.45	0.80	1.81	0.10	0.00	0.10
19.00	1.45	0.80	1.81	0.10	0.00	0.10
19.05	1.45	0.80	1.81	0.10	0.00	0.10
19.10	1.45	0.80	1.81	0.10	0.00	0.10
19.15	1.45	0.80	1.81	0.09	0.00	0.09
19.20	1.45	0.80	1.80	0.09	0.00	0.09
19.25	1.45	0.80	1.80	0.09	0.00	0.09
19.30	1.45	0.81	1.80	0.09	0.00	0.09
19.35	1.45	0.81	1.80	0.09	0.00	0.09
19.40	1.45	0.81	1.80	0.09	0.00	0.09
19.45	1.45	0.81	1.80	0.09	0.00	0.09
19.50	1.45	0.81	1.80	0.09	0.00	0.09
19.55	1.45	0.81	1.80	0.08	0.00	0.08
19.60	1.45	0.81	1.79	0.08	0.00	0.08
19.65	1.45	0.81	1.79	0.08	0.00	0.08
19.70	1.45	0.81	1.79	0.08	0.00	0.08
19.75	1.45	0.81	1.79	0.08	0.00	0.08
19.80	1.45	0.81	1.79	0.08	0.00	0.08
19.85	1.45	0.81	1.79	0.08	0.00	0.08
19.90	1.45	0.81	1.79	0.08	0.00	0.08
19.95	1.45	0.81	1.79	0.07	0.00	0.07
20.00	1.45	0.81	1.78	0.07	0.00	0.07
20.05	1.45	0.81	1.78	0.07	0.00	0.07
20.10	1.45	0.81	1.78	0.07	0.00	0.07
20.15	1.45	0.81	1.78	0.07	0.00	0.07
20.20	1.45	0.82	1.78	0.07	0.00	0.07
20.25	1.45	0.82	1.78	0.07	0.00	0.07
20.30	1.45	0.82	1.78	0.06	0.00	0.06
20.35	1.45	0.82	1.78	0.06	0.00	0.06
20.40	1.45	0.82	1.78	0.06	0.00	0.06
20.45	1.45	0.82	1.77	0.06	0.00	0.06
20.50	1.45	0.82	1.77	0.06	0.00	0.06
20.55	1.45	0.82	1.77	0.06	0.00	0.06
20.60	1.45	0.82	1.77	0.06	0.00	0.06
20.65	1.45	0.82	1.77	0.05	0.00	0.05
20.70	1.45	0.82	1.77	0.05	0.00	0.05
20.75	1.45	0.82	1.77	0.05	0.00	0.05
20.80	1.45	0.82	1.77	0.05	0.00	0.05
20.85	1.45	0.82	1.77	0.05	0.00	0.05
20.90	1.45	0.82	1.76	0.05	0.00	0.05
20.95	1.45	0.82	1.76	0.04	0.00	0.04
21.00	1.45	0.82	1.76	0.04	0.00	0.04
21.05	1.45	0.82	1.76	0.04	0.00	0.04
21.10	1.45	0.82	1.76	0.04	0.00	0.04
21.15	1.45	0.82	1.76	0.04	0.00	0.04
21.20	1.45	0.83	1.76	0.03	0.00	0.03
21.25	1.45	0.83	1.76	0.03	0.00	0.03
21.30	1.45	0.83	1.76	0.03	0.00	0.03
21.35	1.45	0.83	1.75	0.03	0.00	0.03
21.40	1.45	0.83	1.75	0.03	0.00	0.03
21.45	1.45	0.83	1.75	0.02	0.00	0.02
21.50	1.45	0.83	1.75	0.02	0.00	0.02
21.55	1.45	0.83	1.75	0.02	0.00	0.02
21.60	1.45	0.83	1.75	0.02	0.00	0.02
21.65	1.45	0.83	1.75	0.02	0.00	0.02
21.70	1.45	0.83	1.75	0.01	0.00	0.01
21.75	1.45	0.83	1.75	0.01	0.00	0.01
21.80	1.45	0.83	1.75	0.01	0.00	0.01
21.85	1.45	0.83	1.74	0.01	0.00	0.01
21.90	1.45	0.83	1.74	0.00	0.00	0.00
21.95	1.45	0.83	1.74	0.00	0.00	0.00
22.00	1.45	0.83	1.74	0.00	0.00	0.00
22.05	2.00	0.83	5.00	0.00	0.00	0.00
22.10	2.00	0.83	5.00	0.00	0.00	0.00
22.15	2.00	0.83	5.00	0.00	0.00	0.00
22.20	2.00	0.83	5.00	0.00	0.00	0.00

22.25	2.00	0.84	5.00	0.00	0.00	0.00
22.30	2.00	0.84	5.00	0.00	0.00	0.00
22.35	2.00	0.84	5.00	0.00	0.00	0.00
22.40	2.00	0.84	5.00	0.00	0.00	0.00
22.45	2.00	0.84	5.00	0.00	0.00	0.00
22.50	2.00	0.84	5.00	0.00	0.00	0.00
22.55	2.00	0.84	5.00	0.00	0.00	0.00
22.60	2.00	0.84	5.00	0.00	0.00	0.00
22.65	2.00	0.84	5.00	0.00	0.00	0.00
22.70	2.00	0.84	5.00	0.00	0.00	0.00
22.75	2.00	0.84	5.00	0.00	0.00	0.00
22.80	2.00	0.84	5.00	0.00	0.00	0.00
22.85	2.00	0.84	5.00	0.00	0.00	0.00
22.90	2.00	0.84	5.00	0.00	0.00	0.00
22.95	2.00	0.84	5.00	0.00	0.00	0.00
23.00	2.00	0.84	5.00	0.00	0.00	0.00
23.05	2.00	0.84	5.00	0.00	0.00	0.00
23.10	2.00	0.84	5.00	0.00	0.00	0.00
23.15	2.00	0.84	5.00	0.00	0.00	0.00
23.20	2.00	0.84	5.00	0.00	0.00	0.00
23.25	2.00	0.84	5.00	0.00	0.00	0.00
23.30	2.00	0.84	5.00	0.00	0.00	0.00
23.35	2.00	0.84	5.00	0.00	0.00	0.00
23.40	2.00	0.84	5.00	0.00	0.00	0.00
23.45	2.00	0.85	5.00	0.00	0.00	0.00
23.50	2.00	0.85	5.00	0.00	0.00	0.00
23.55	2.00	0.85	5.00	0.00	0.00	0.00
23.60	2.00	0.85	5.00	0.00	0.00	0.00
23.65	2.00	0.85	5.00	0.00	0.00	0.00
23.70	2.00	0.85	5.00	0.00	0.00	0.00
23.75	2.00	0.85	5.00	0.00	0.00	0.00
23.80	2.00	0.85	5.00	0.00	0.00	0.00
23.85	2.00	0.85	5.00	0.00	0.00	0.00
23.90	2.00	0.85	5.00	0.00	0.00	0.00
23.95	2.00	0.85	5.00	0.00	0.00	0.00
24.00	2.00	0.85	5.00	0.00	0.00	0.00
24.05	2.00	0.85	5.00	0.00	0.00	0.00
24.10	2.00	0.85	5.00	0.00	0.00	0.00
24.15	2.00	0.85	5.00	0.00	0.00	0.00
24.20	2.00	0.85	5.00	0.00	0.00	0.00
24.25	2.00	0.85	5.00	0.00	0.00	0.00
24.30	2.00	0.85	5.00	0.00	0.00	0.00
24.35	2.00	0.85	5.00	0.00	0.00	0.00
24.40	2.00	0.85	5.00	0.00	0.00	0.00
24.45	2.00	0.85	5.00	0.00	0.00	0.00
24.50	2.00	0.85	5.00	0.00	0.00	0.00
24.55	2.00	0.85	5.00	0.00	0.00	0.00
24.60	2.00	0.85	5.00	0.00	0.00	0.00
24.65	2.00	0.85	5.00	0.00	0.00	0.00
24.70	2.00	0.85	5.00	0.00	0.00	0.00
24.75	2.00	0.85	5.00	0.00	0.00	0.00
24.80	2.00	0.86	5.00	0.00	0.00	0.00
24.85	2.00	0.86	5.00	0.00	0.00	0.00
24.90	2.00	0.86	5.00	0.00	0.00	0.00
24.95	2.00	0.86	5.00	0.00	0.00	0.00
25.00	2.00	0.86	5.00	0.00	0.00	0.00
25.05	2.00	0.86	5.00	0.00	0.00	0.00
25.10	2.00	0.86	5.00	0.00	0.00	0.00
25.15	2.00	0.86	5.00	0.00	0.00	0.00
25.20	2.00	0.86	5.00	0.00	0.00	0.00
25.25	2.00	0.86	5.00	0.00	0.00	0.00
25.30	2.00	0.86	5.00	0.00	0.00	0.00
25.35	2.00	0.86	5.00	0.00	0.00	0.00
25.40	2.00	0.86	5.00	0.00	0.00	0.00
25.45	2.00	0.86	5.00	0.00	0.00	0.00
25.50	2.00	0.86	5.00	0.00	0.00	0.00
25.55	2.00	0.86	5.00	0.00	0.00	0.00
25.60	2.00	0.86	5.00	0.00	0.00	0.00
25.65	2.00	0.86	5.00	0.00	0.00	0.00
25.70	2.00	0.86	5.00	0.00	0.00	0.00
25.75	2.00	0.86	5.00	0.00	0.00	0.00
25.80	2.00	0.86	5.00	0.00	0.00	0.00
25.85	2.00	0.86	5.00	0.00	0.00	0.00
25.90	2.00	0.86	5.00	0.00	0.00	0.00
25.95	2.00	0.86	5.00	0.00	0.00	0.00
26.00	2.00	0.86	5.00	0.00	0.00	0.00

26.05	2.00	0.86	5.00	0.00	0.00	0.00
26.10	2.00	0.86	5.00	0.00	0.00	0.00
26.15	2.00	0.86	5.00	0.00	0.00	0.00
26.20	2.00	0.86	5.00	0.00	0.00	0.00
26.25	2.00	0.86	5.00	0.00	0.00	0.00
26.30	2.00	0.86	5.00	0.00	0.00	0.00
26.35	2.00	0.87	5.00	0.00	0.00	0.00
26.40	2.00	0.87	5.00	0.00	0.00	0.00
26.45	2.00	0.87	5.00	0.00	0.00	0.00
26.50	2.00	0.87	5.00	0.00	0.00	0.00
26.55	2.00	0.87	5.00	0.00	0.00	0.00
26.60	2.00	0.87	5.00	0.00	0.00	0.00
26.65	2.00	0.87	5.00	0.00	0.00	0.00
26.70	2.00	0.87	5.00	0.00	0.00	0.00
26.75	2.00	0.87	5.00	0.00	0.00	0.00
26.80	2.00	0.87	5.00	0.00	0.00	0.00
26.85	2.00	0.87	5.00	0.00	0.00	0.00
26.90	2.00	0.87	5.00	0.00	0.00	0.00
26.95	2.00	0.87	5.00	0.00	0.00	0.00
27.00	2.00	0.87	5.00	0.00	0.00	0.00
27.05	2.00	0.87	5.00	0.00	0.00	0.00
27.10	2.00	0.87	5.00	0.00	0.00	0.00
27.15	2.00	0.87	5.00	0.00	0.00	0.00
27.20	2.00	0.87	5.00	0.00	0.00	0.00
27.25	2.00	0.87	5.00	0.00	0.00	0.00
27.30	2.00	0.87	5.00	0.00	0.00	0.00
27.35	2.00	0.87	5.00	0.00	0.00	0.00
27.40	2.00	0.87	5.00	0.00	0.00	0.00
27.45	2.00	0.87	5.00	0.00	0.00	0.00
27.50	2.00	0.87	5.00	0.00	0.00	0.00
27.55	2.00	0.87	5.00	0.00	0.00	0.00
27.60	2.00	0.87	5.00	0.00	0.00	0.00
27.65	2.00	0.87	5.00	0.00	0.00	0.00
27.70	2.00	0.87	5.00	0.00	0.00	0.00
27.75	2.00	0.87	5.00	0.00	0.00	0.00
27.80	2.00	0.87	5.00	0.00	0.00	0.00
27.85	2.00	0.87	5.00	0.00	0.00	0.00
27.90	2.00	0.87	5.00	0.00	0.00	0.00
27.95	2.00	0.87	5.00	0.00	0.00	0.00
28.00	2.00	0.87	5.00	0.00	0.00	0.00
28.05	2.00	0.87	5.00	0.00	0.00	0.00
28.10	2.00	0.87	5.00	0.00	0.00	0.00
28.15	2.00	0.87	5.00	0.00	0.00	0.00
28.20	2.00	0.88	5.00	0.00	0.00	0.00
28.25	2.00	0.88	5.00	0.00	0.00	0.00
28.30	2.00	0.88	5.00	0.00	0.00	0.00
28.35	2.00	0.88	5.00	0.00	0.00	0.00
28.40	2.00	0.88	5.00	0.00	0.00	0.00
28.45	2.00	0.88	5.00	0.00	0.00	0.00
28.50	2.00	0.88	5.00	0.00	0.00	0.00
28.55	2.00	0.88	5.00	0.00	0.00	0.00
28.60	2.00	0.88	5.00	0.00	0.00	0.00
28.65	2.00	0.88	5.00	0.00	0.00	0.00
28.70	2.00	0.88	5.00	0.00	0.00	0.00
28.75	2.00	0.88	5.00	0.00	0.00	0.00
28.80	2.00	0.88	5.00	0.00	0.00	0.00
28.85	2.00	0.88	5.00	0.00	0.00	0.00
28.90	2.00	0.88	5.00	0.00	0.00	0.00
28.95	2.00	0.88	5.00	0.00	0.00	0.00
29.00	2.00	0.88	5.00	0.00	0.00	0.00
29.05	2.00	0.88	5.00	0.00	0.00	0.00
29.10	2.00	0.88	5.00	0.00	0.00	0.00
29.15	2.00	0.88	5.00	0.00	0.00	0.00
29.20	2.00	0.88	5.00	0.00	0.00	0.00
29.25	2.00	0.88	5.00	0.00	0.00	0.00
29.30	2.00	0.88	5.00	0.00	0.00	0.00
29.35	2.00	0.88	5.00	0.00	0.00	0.00
29.40	2.00	0.88	5.00	0.00	0.00	0.00
29.45	2.00	0.88	5.00	0.00	0.00	0.00
29.50	2.00	0.88	5.00	0.00	0.00	0.00
29.55	2.00	0.88	5.00	0.00	0.00	0.00
29.60	2.00	0.88	5.00	0.00	0.00	0.00
29.65	2.00	0.88	5.00	0.00	0.00	0.00
29.70	2.00	0.88	5.00	0.00	0.00	0.00
29.75	2.00	0.88	5.00	0.00	0.00	0.00
29.80	2.00	0.88	5.00	0.00	0.00	0.00

29.85	2.00	0.88	5.00	0.00	0.00	0.00
29.90	2.00	0.88	5.00	0.00	0.00	0.00
29.95	2.00	0.88	5.00	0.00	0.00	0.00
30.00	2.00	0.88	5.00	0.00	0.00	0.00
30.05	2.00	0.88	5.00	0.00	0.00	0.00
30.10	2.00	0.88	5.00	0.00	0.00	0.00
30.15	2.00	0.88	5.00	0.00	0.00	0.00
30.20	2.00	0.88	5.00	0.00	0.00	0.00
30.25	2.00	0.88	5.00	0.00	0.00	0.00
30.30	2.00	0.88	5.00	0.00	0.00	0.00
30.35	2.00	0.88	5.00	0.00	0.00	0.00
30.40	2.00	0.88	5.00	0.00	0.00	0.00
30.45	2.00	0.88	5.00	0.00	0.00	0.00
30.50	2.00	0.88	5.00	0.00	0.00	0.00
30.55	2.00	0.88	5.00	0.00	0.00	0.00
30.60	2.00	0.88	5.00	0.00	0.00	0.00
30.65	2.00	0.88	5.00	0.00	0.00	0.00
30.70	2.00	0.88	5.00	0.00	0.00	0.00
30.75	2.00	0.88	5.00	0.00	0.00	0.00
30.80	2.00	0.88	5.00	0.00	0.00	0.00
30.85	2.00	0.88	5.00	0.00	0.00	0.00
30.90	2.00	0.88	5.00	0.00	0.00	0.00
30.95	2.00	0.88	5.00	0.00	0.00	0.00
31.00	2.00	0.88	5.00	0.00	0.00	0.00
31.05	2.00	0.88	5.00	0.00	0.00	0.00
31.10	2.00	0.88	5.00	0.00	0.00	0.00
31.15	2.00	0.88	5.00	0.00	0.00	0.00
31.20	2.00	0.88	5.00	0.00	0.00	0.00
31.25	2.00	0.88	5.00	0.00	0.00	0.00
31.30	2.00	0.88	5.00	0.00	0.00	0.00
31.35	2.00	0.88	5.00	0.00	0.00	0.00
31.40	2.00	0.88	5.00	0.00	0.00	0.00
31.45	2.00	0.88	5.00	0.00	0.00	0.00
31.50	2.00	0.88	5.00	0.00	0.00	0.00
31.55	2.00	0.88	5.00	0.00	0.00	0.00
31.60	2.00	0.88	5.00	0.00	0.00	0.00
31.65	2.00	0.88	5.00	0.00	0.00	0.00
31.70	2.00	0.88	5.00	0.00	0.00	0.00
31.75	2.00	0.88	5.00	0.00	0.00	0.00
31.80	2.00	0.88	5.00	0.00	0.00	0.00
31.85	2.00	0.88	5.00	0.00	0.00	0.00
31.90	2.00	0.88	5.00	0.00	0.00	0.00
31.95	2.00	0.88	5.00	0.00	0.00	0.00
32.00	2.00	0.88	5.00	0.00	0.00	0.00
32.05	2.00	0.88	5.00	0.00	0.00	0.00
32.10	2.00	0.88	5.00	0.00	0.00	0.00
32.15	2.00	0.88	5.00	0.00	0.00	0.00
32.20	2.00	0.88	5.00	0.00	0.00	0.00
32.25	2.00	0.88	5.00	0.00	0.00	0.00
32.30	2.00	0.88	5.00	0.00	0.00	0.00
32.35	2.00	0.88	5.00	0.00	0.00	0.00
32.40	2.00	0.88	5.00	0.00	0.00	0.00
32.45	2.00	0.88	5.00	0.00	0.00	0.00
32.50	2.00	0.88	5.00	0.00	0.00	0.00
32.55	2.00	0.88	5.00	0.00	0.00	0.00
32.60	2.00	0.88	5.00	0.00	0.00	0.00
32.65	2.00	0.88	5.00	0.00	0.00	0.00
32.70	2.00	0.88	5.00	0.00	0.00	0.00
32.75	2.00	0.88	5.00	0.00	0.00	0.00
32.80	2.00	0.88	5.00	0.00	0.00	0.00
32.85	2.00	0.88	5.00	0.00	0.00	0.00
32.90	2.00	0.88	5.00	0.00	0.00	0.00
32.95	2.00	0.88	5.00	0.00	0.00	0.00
33.00	2.00	0.88	5.00	0.00	0.00	0.00
33.05	2.00	0.88	5.00	0.00	0.00	0.00
33.10	2.00	0.88	5.00	0.00	0.00	0.00
33.15	2.00	0.88	5.00	0.00	0.00	0.00
33.20	2.00	0.88	5.00	0.00	0.00	0.00
33.25	2.00	0.88	5.00	0.00	0.00	0.00
33.30	2.00	0.88	5.00	0.00	0.00	0.00
33.35	2.00	0.88	5.00	0.00	0.00	0.00
33.40	2.00	0.88	5.00	0.00	0.00	0.00
33.45	2.00	0.88	5.00	0.00	0.00	0.00
33.50	2.00	0.88	5.00	0.00	0.00	0.00
33.55	2.00	0.88	5.00	0.00	0.00	0.00
33.60	2.00	0.88	5.00	0.00	0.00	0.00

33.65	2.00	0.87	5.00	0.00	0.00	0.00
33.70	2.00	0.87	5.00	0.00	0.00	0.00
33.75	2.00	0.87	5.00	0.00	0.00	0.00
33.80	2.00	0.87	5.00	0.00	0.00	0.00
33.85	2.00	0.87	5.00	0.00	0.00	0.00
33.90	2.00	0.87	5.00	0.00	0.00	0.00
33.95	2.00	0.87	5.00	0.00	0.00	0.00
34.00	2.00	0.87	5.00	0.00	0.00	0.00
34.05	2.00	0.87	5.00	0.00	0.00	0.00
34.10	2.00	0.87	5.00	0.00	0.00	0.00
34.15	2.00	0.87	5.00	0.00	0.00	0.00
34.20	2.00	0.87	5.00	0.00	0.00	0.00
34.25	2.00	0.87	5.00	0.00	0.00	0.00
34.30	2.00	0.87	5.00	0.00	0.00	0.00
34.35	2.00	0.87	5.00	0.00	0.00	0.00
34.40	2.00	0.87	5.00	0.00	0.00	0.00
34.45	2.00	0.87	5.00	0.00	0.00	0.00
34.50	2.00	0.87	5.00	0.00	0.00	0.00
34.55	2.00	0.87	5.00	0.00	0.00	0.00
34.60	2.00	0.87	5.00	0.00	0.00	0.00
34.65	2.00	0.87	5.00	0.00	0.00	0.00
34.70	2.00	0.87	5.00	0.00	0.00	0.00
34.75	2.00	0.87	5.00	0.00	0.00	0.00
34.80	2.00	0.87	5.00	0.00	0.00	0.00
34.85	2.00	0.87	5.00	0.00	0.00	0.00
34.90	2.00	0.87	5.00	0.00	0.00	0.00
34.95	2.00	0.87	5.00	0.00	0.00	0.00
35.00	2.00	0.87	5.00	0.00	0.00	0.00
35.05	2.00	0.87	5.00	0.00	0.00	0.00
35.10	2.00	0.87	5.00	0.00	0.00	0.00
35.15	2.00	0.87	5.00	0.00	0.00	0.00
35.20	2.00	0.87	5.00	0.00	0.00	0.00
35.25	2.00	0.87	5.00	0.00	0.00	0.00
35.30	2.00	0.87	5.00	0.00	0.00	0.00
35.35	2.00	0.87	5.00	0.00	0.00	0.00
35.40	2.00	0.87	5.00	0.00	0.00	0.00
35.45	2.00	0.87	5.00	0.00	0.00	0.00
35.50	2.00	0.87	5.00	0.00	0.00	0.00
35.55	2.00	0.87	5.00	0.00	0.00	0.00
35.60	2.00	0.87	5.00	0.00	0.00	0.00
35.65	2.00	0.87	5.00	0.00	0.00	0.00
35.70	2.00	0.87	5.00	0.00	0.00	0.00
35.75	2.00	0.87	5.00	0.00	0.00	0.00
35.80	2.00	0.87	5.00	0.00	0.00	0.00
35.85	2.00	0.87	5.00	0.00	0.00	0.00
35.90	2.00	0.87	5.00	0.00	0.00	0.00
35.95	2.00	0.87	5.00	0.00	0.00	0.00
36.00	2.00	0.87	5.00	0.00	0.00	0.00
36.05	2.00	0.87	5.00	0.00	0.00	0.00
36.10	2.00	0.87	5.00	0.00	0.00	0.00
36.15	2.00	0.87	5.00	0.00	0.00	0.00
36.20	2.00	0.87	5.00	0.00	0.00	0.00
36.25	2.00	0.87	5.00	0.00	0.00	0.00
36.30	2.00	0.87	5.00	0.00	0.00	0.00
36.35	2.00	0.87	5.00	0.00	0.00	0.00
36.40	2.00	0.87	5.00	0.00	0.00	0.00
36.45	2.00	0.87	5.00	0.00	0.00	0.00
36.50	2.00	0.87	5.00	0.00	0.00	0.00
36.55	2.00	0.87	5.00	0.00	0.00	0.00
36.60	2.00	0.87	5.00	0.00	0.00	0.00
36.65	2.00	0.86	5.00	0.00	0.00	0.00
36.70	2.00	0.86	5.00	0.00	0.00	0.00
36.75	2.00	0.86	5.00	0.00	0.00	0.00
36.80	2.00	0.86	5.00	0.00	0.00	0.00
36.85	2.00	0.86	5.00	0.00	0.00	0.00
36.90	2.00	0.86	5.00	0.00	0.00	0.00
36.95	2.00	0.86	5.00	0.00	0.00	0.00
37.00	2.00	0.86	5.00	0.00	0.00	0.00
37.05	2.00	0.86	5.00	0.00	0.00	0.00
37.10	2.00	0.86	5.00	0.00	0.00	0.00
37.15	2.00	0.86	5.00	0.00	0.00	0.00
37.20	2.00	0.86	5.00	0.00	0.00	0.00
37.25	2.00	0.86	5.00	0.00	0.00	0.00
37.30	2.00	0.86	5.00	0.00	0.00	0.00
37.35	2.00	0.86	5.00	0.00	0.00	0.00
37.40	2.00	0.86	5.00	0.00	0.00	0.00

37.45	2.00	0.86	5.00	0.00	0.00	0.00
37.50	2.00	0.86	5.00	0.00	0.00	0.00
37.55	2.00	0.86	5.00	0.00	0.00	0.00
37.60	2.00	0.86	5.00	0.00	0.00	0.00
37.65	2.00	0.86	5.00	0.00	0.00	0.00
37.70	2.00	0.86	5.00	0.00	0.00	0.00
37.75	2.00	0.86	5.00	0.00	0.00	0.00
37.80	2.00	0.86	5.00	0.00	0.00	0.00
37.85	2.00	0.86	5.00	0.00	0.00	0.00
37.90	2.00	0.86	5.00	0.00	0.00	0.00
37.95	2.00	0.86	5.00	0.00	0.00	0.00
38.00	2.00	0.86	5.00	0.00	0.00	0.00
38.05	2.00	0.86	5.00	0.00	0.00	0.00
38.10	2.00	0.86	5.00	0.00	0.00	0.00
38.15	2.00	0.86	5.00	0.00	0.00	0.00
38.20	2.00	0.86	5.00	0.00	0.00	0.00
38.25	2.00	0.86	5.00	0.00	0.00	0.00
38.30	2.00	0.86	5.00	0.00	0.00	0.00
38.35	2.00	0.86	5.00	0.00	0.00	0.00
38.40	2.00	0.86	5.00	0.00	0.00	0.00
38.45	2.00	0.86	5.00	0.00	0.00	0.00
38.50	2.00	0.86	5.00	0.00	0.00	0.00
38.55	2.00	0.86	5.00	0.00	0.00	0.00
38.60	2.00	0.86	5.00	0.00	0.00	0.00
38.65	2.00	0.86	5.00	0.00	0.00	0.00
38.70	2.00	0.86	5.00	0.00	0.00	0.00
38.75	2.00	0.86	5.00	0.00	0.00	0.00
38.80	2.00	0.86	5.00	0.00	0.00	0.00
38.85	2.00	0.86	5.00	0.00	0.00	0.00
38.90	2.00	0.86	5.00	0.00	0.00	0.00
38.95	2.00	0.86	5.00	0.00	0.00	0.00
39.00	2.00	0.86	5.00	0.00	0.00	0.00
39.05	2.00	0.86	5.00	0.00	0.00	0.00
39.10	2.00	0.86	5.00	0.00	0.00	0.00
39.15	2.00	0.86	5.00	0.00	0.00	0.00
39.20	2.00	0.85	5.00	0.00	0.00	0.00
39.25	2.00	0.85	5.00	0.00	0.00	0.00
39.30	2.00	0.85	5.00	0.00	0.00	0.00
39.35	2.00	0.85	5.00	0.00	0.00	0.00
39.40	2.00	0.85	5.00	0.00	0.00	0.00
39.45	2.00	0.85	5.00	0.00	0.00	0.00
39.50	2.00	0.85	5.00	0.00	0.00	0.00
39.55	2.00	0.85	5.00	0.00	0.00	0.00
39.60	2.00	0.85	5.00	0.00	0.00	0.00
39.65	2.00	0.85	5.00	0.00	0.00	0.00
39.70	2.00	0.85	5.00	0.00	0.00	0.00
39.75	2.00	0.85	5.00	0.00	0.00	0.00
39.80	2.00	0.85	5.00	0.00	0.00	0.00
39.85	2.00	0.85	5.00	0.00	0.00	0.00
39.90	2.00	0.85	5.00	0.00	0.00	0.00
39.95	2.00	0.85	5.00	0.00	0.00	0.00
40.00	2.00	0.85	5.00	0.00	0.00	0.00
40.05	2.00	0.85	5.00	0.00	0.00	0.00
40.10	2.00	0.85	5.00	0.00	0.00	0.00
40.15	2.00	0.85	5.00	0.00	0.00	0.00
40.20	2.00	0.85	5.00	0.00	0.00	0.00
40.25	2.00	0.85	5.00	0.00	0.00	0.00
40.30	2.00	0.85	5.00	0.00	0.00	0.00
40.35	2.00	0.85	5.00	0.00	0.00	0.00
40.40	2.00	0.85	5.00	0.00	0.00	0.00
40.45	2.00	0.85	5.00	0.00	0.00	0.00
40.50	2.00	0.85	5.00	0.00	0.00	0.00
40.55	2.00	0.85	5.00	0.00	0.00	0.00
40.60	2.00	0.85	5.00	0.00	0.00	0.00
40.65	2.00	0.85	5.00	0.00	0.00	0.00
40.70	2.00	0.85	5.00	0.00	0.00	0.00
40.75	2.00	0.85	5.00	0.00	0.00	0.00
40.80	2.00	0.85	5.00	0.00	0.00	0.00
40.85	2.00	0.85	5.00	0.00	0.00	0.00
40.90	2.00	0.85	5.00	0.00	0.00	0.00
40.95	2.00	0.85	5.00	0.00	0.00	0.00
41.00	2.00	0.85	5.00	0.00	0.00	0.00
41.05	2.00	0.85	5.00	0.00	0.00	0.00
41.10	2.00	0.85	5.00	0.00	0.00	0.00
41.15	2.00	0.85	5.00	0.00	0.00	0.00
41.20	2.00	0.85	5.00	0.00	0.00	0.00

41.25	2.00	0.85	5.00	0.00	0.00	0.00
41.30	2.00	0.85	5.00	0.00	0.00	0.00
41.35	2.00	0.84	5.00	0.00	0.00	0.00
41.40	2.00	0.84	5.00	0.00	0.00	0.00
41.45	2.00	0.84	5.00	0.00	0.00	0.00
41.50	2.00	0.84	5.00	0.00	0.00	0.00
41.55	2.00	0.84	5.00	0.00	0.00	0.00
41.60	2.00	0.84	5.00	0.00	0.00	0.00
41.65	2.00	0.84	5.00	0.00	0.00	0.00
41.70	2.00	0.84	5.00	0.00	0.00	0.00
41.75	2.00	0.84	5.00	0.00	0.00	0.00
41.80	2.00	0.84	5.00	0.00	0.00	0.00
41.85	2.00	0.84	5.00	0.00	0.00	0.00
41.90	2.00	0.84	5.00	0.00	0.00	0.00
41.95	2.00	0.84	5.00	0.00	0.00	0.00
42.00	2.00	0.84	5.00	0.00	0.00	0.00
42.05	2.00	0.84	5.00	0.00	0.00	0.00
42.10	2.00	0.84	5.00	0.00	0.00	0.00
42.15	2.00	0.84	5.00	0.00	0.00	0.00
42.20	2.00	0.84	5.00	0.00	0.00	0.00
42.25	2.00	0.84	5.00	0.00	0.00	0.00
42.30	2.00	0.84	5.00	0.00	0.00	0.00
42.35	2.00	0.84	5.00	0.00	0.00	0.00
42.40	2.00	0.84	5.00	0.00	0.00	0.00
42.45	2.00	0.84	5.00	0.00	0.00	0.00
42.50	2.00	0.84	5.00	0.00	0.00	0.00
42.55	2.00	0.84	5.00	0.00	0.00	0.00
42.60	2.00	0.84	5.00	0.00	0.00	0.00
42.65	2.00	0.84	5.00	0.00	0.00	0.00
42.70	2.00	0.84	5.00	0.00	0.00	0.00
42.75	2.00	0.84	5.00	0.00	0.00	0.00
42.80	2.00	0.84	5.00	0.00	0.00	0.00
42.85	2.00	0.84	5.00	0.00	0.00	0.00
42.90	2.00	0.84	5.00	0.00	0.00	0.00
42.95	2.00	0.84	5.00	0.00	0.00	0.00
43.00	2.00	0.84	5.00	0.00	0.00	0.00
43.05	2.00	0.84	5.00	0.00	0.00	0.00
43.10	2.00	0.84	5.00	0.00	0.00	0.00
43.15	2.00	0.84	5.00	0.00	0.00	0.00
43.20	2.00	0.83	5.00	0.00	0.00	0.00
43.25	2.00	0.83	5.00	0.00	0.00	0.00
43.30	2.00	0.83	5.00	0.00	0.00	0.00
43.35	2.00	0.83	5.00	0.00	0.00	0.00
43.40	2.00	0.83	5.00	0.00	0.00	0.00
43.45	2.00	0.83	5.00	0.00	0.00	0.00
43.50	2.00	0.83	5.00	0.00	0.00	0.00
43.55	2.00	0.83	5.00	0.00	0.00	0.00
43.60	2.00	0.83	5.00	0.00	0.00	0.00
43.65	2.00	0.83	5.00	0.00	0.00	0.00
43.70	2.00	0.83	5.00	0.00	0.00	0.00
43.75	2.00	0.83	5.00	0.00	0.00	0.00
43.80	2.00	0.83	5.00	0.00	0.00	0.00
43.85	2.00	0.83	5.00	0.00	0.00	0.00
43.90	2.00	0.83	5.00	0.00	0.00	0.00
43.95	2.00	0.83	5.00	0.00	0.00	0.00
44.00	2.00	0.83	5.00	0.00	0.00	0.00
44.05	2.00	0.83	5.00	0.00	0.00	0.00
44.10	2.00	0.83	5.00	0.00	0.00	0.00
44.15	2.00	0.83	5.00	0.00	0.00	0.00
44.20	2.00	0.83	5.00	0.00	0.00	0.00
44.25	2.00	0.83	5.00	0.00	0.00	0.00
44.30	2.00	0.83	5.00	0.00	0.00	0.00
44.35	2.00	0.83	5.00	0.00	0.00	0.00
44.40	2.00	0.83	5.00	0.00	0.00	0.00
44.45	2.00	0.83	5.00	0.00	0.00	0.00
44.50	2.00	0.83	5.00	0.00	0.00	0.00
44.55	2.00	0.83	5.00	0.00	0.00	0.00
44.60	2.00	0.83	5.00	0.00	0.00	0.00
44.65	2.00	0.83	5.00	0.00	0.00	0.00
44.70	2.00	0.83	5.00	0.00	0.00	0.00
44.75	2.00	0.83	5.00	0.00	0.00	0.00
44.80	2.00	0.83	5.00	0.00	0.00	0.00
44.85	2.00	0.83	5.00	0.00	0.00	0.00
44.90	2.00	0.83	5.00	0.00	0.00	0.00
44.95	2.00	0.82	5.00	0.00	0.00	0.00
45.00	2.00	0.82	5.00	0.00	0.00	0.00

45.05	2.00	0.82	5.00	0.00	0.00	0.00
45.10	2.00	0.82	5.00	0.00	0.00	0.00
45.15	2.00	0.82	5.00	0.00	0.00	0.00
45.20	2.00	0.82	5.00	0.00	0.00	0.00
45.25	2.00	0.82	5.00	0.00	0.00	0.00
45.30	2.00	0.82	5.00	0.00	0.00	0.00
45.35	2.00	0.82	5.00	0.00	0.00	0.00
45.40	2.00	0.82	5.00	0.00	0.00	0.00
45.45	2.00	0.82	5.00	0.00	0.00	0.00
45.50	2.00	0.82	5.00	0.00	0.00	0.00
45.55	2.00	0.82	5.00	0.00	0.00	0.00
45.60	2.00	0.82	5.00	0.00	0.00	0.00
45.65	2.00	0.82	5.00	0.00	0.00	0.00
45.70	2.00	0.82	5.00	0.00	0.00	0.00
45.75	2.00	0.82	5.00	0.00	0.00	0.00
45.80	2.00	0.82	5.00	0.00	0.00	0.00
45.85	2.00	0.82	5.00	0.00	0.00	0.00
45.90	2.00	0.82	5.00	0.00	0.00	0.00
45.95	2.00	0.82	5.00	0.00	0.00	0.00
46.00	2.00	0.82	5.00	0.00	0.00	0.00
46.05	2.00	0.82	5.00	0.00	0.00	0.00
46.10	2.00	0.82	5.00	0.00	0.00	0.00
46.15	2.00	0.82	5.00	0.00	0.00	0.00
46.20	2.00	0.82	5.00	0.00	0.00	0.00
46.25	2.00	0.82	5.00	0.00	0.00	0.00
46.30	2.00	0.82	5.00	0.00	0.00	0.00
46.35	2.00	0.82	5.00	0.00	0.00	0.00
46.40	2.00	0.82	5.00	0.00	0.00	0.00
46.45	2.00	0.82	5.00	0.00	0.00	0.00
46.50	2.00	0.82	5.00	0.00	0.00	0.00
46.55	2.00	0.81	5.00	0.00	0.00	0.00
46.60	2.00	0.81	5.00	0.00	0.00	0.00
46.65	2.00	0.81	5.00	0.00	0.00	0.00
46.70	2.00	0.81	5.00	0.00	0.00	0.00
46.75	2.00	0.81	5.00	0.00	0.00	0.00
46.80	2.00	0.81	5.00	0.00	0.00	0.00
46.85	2.00	0.81	5.00	0.00	0.00	0.00
46.90	2.00	0.81	5.00	0.00	0.00	0.00
46.95	2.00	0.81	5.00	0.00	0.00	0.00
47.00	2.00	0.81	5.00	0.00	0.00	0.00
47.05	2.00	0.81	5.00	0.00	0.00	0.00
47.10	2.00	0.81	5.00	0.00	0.00	0.00
47.15	2.00	0.81	5.00	0.00	0.00	0.00
47.20	2.00	0.81	5.00	0.00	0.00	0.00
47.25	2.00	0.81	5.00	0.00	0.00	0.00
47.30	2.00	0.81	5.00	0.00	0.00	0.00
47.35	2.00	0.81	5.00	0.00	0.00	0.00
47.40	2.00	0.81	5.00	0.00	0.00	0.00
47.45	2.00	0.81	5.00	0.00	0.00	0.00
47.50	2.00	0.81	5.00	0.00	0.00	0.00
47.55	2.00	0.81	5.00	0.00	0.00	0.00
47.60	2.00	0.81	5.00	0.00	0.00	0.00
47.65	2.00	0.81	5.00	0.00	0.00	0.00
47.70	2.00	0.81	5.00	0.00	0.00	0.00
47.75	2.00	0.81	5.00	0.00	0.00	0.00
47.80	2.00	0.81	5.00	0.00	0.00	0.00
47.85	2.00	0.81	5.00	0.00	0.00	0.00
47.90	2.00	0.81	5.00	0.00	0.00	0.00
47.95	2.00	0.81	5.00	0.00	0.00	0.00
48.00	2.00	0.81	5.00	0.00	0.00	0.00
48.05	2.00	0.81	5.00	0.00	0.00	0.00
48.10	2.00	0.81	5.00	0.00	0.00	0.00
48.15	2.00	0.80	5.00	0.00	0.00	0.00
48.20	2.00	0.80	5.00	0.00	0.00	0.00
48.25	2.00	0.80	5.00	0.00	0.00	0.00
48.30	2.00	0.80	5.00	0.00	0.00	0.00
48.35	2.00	0.80	5.00	0.00	0.00	0.00
48.40	2.00	0.80	5.00	0.00	0.00	0.00
48.45	2.00	0.80	5.00	0.00	0.00	0.00
48.50	2.00	0.80	5.00	0.00	0.00	0.00
48.55	2.00	0.80	5.00	0.00	0.00	0.00
48.60	2.00	0.80	5.00	0.00	0.00	0.00
48.65	2.00	0.80	5.00	0.00	0.00	0.00
48.70	2.00	0.80	5.00	0.00	0.00	0.00
48.75	2.00	0.80	5.00	0.00	0.00	0.00
48.80	2.00	0.80	5.00	0.00	0.00	0.00

48.85	2.00	0.80	5.00	0.00	0.00	0.00
48.90	2.00	0.80	5.00	0.00	0.00	0.00
48.95	2.00	0.80	5.00	0.00	0.00	0.00
49.00	2.00	0.80	5.00	0.00	0.00	0.00
49.05	2.00	0.80	5.00	0.00	0.00	0.00
49.10	2.00	0.80	5.00	0.00	0.00	0.00
49.15	2.00	0.80	5.00	0.00	0.00	0.00
49.20	2.00	0.80	5.00	0.00	0.00	0.00
49.25	2.00	0.80	5.00	0.00	0.00	0.00
49.30	2.00	0.80	5.00	0.00	0.00	0.00
49.35	2.00	0.80	5.00	0.00	0.00	0.00
49.40	2.00	0.80	5.00	0.00	0.00	0.00
49.45	2.00	0.80	5.00	0.00	0.00	0.00
49.50	2.00	0.80	5.00	0.00	0.00	0.00

---

* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft; Settlement = in.

---

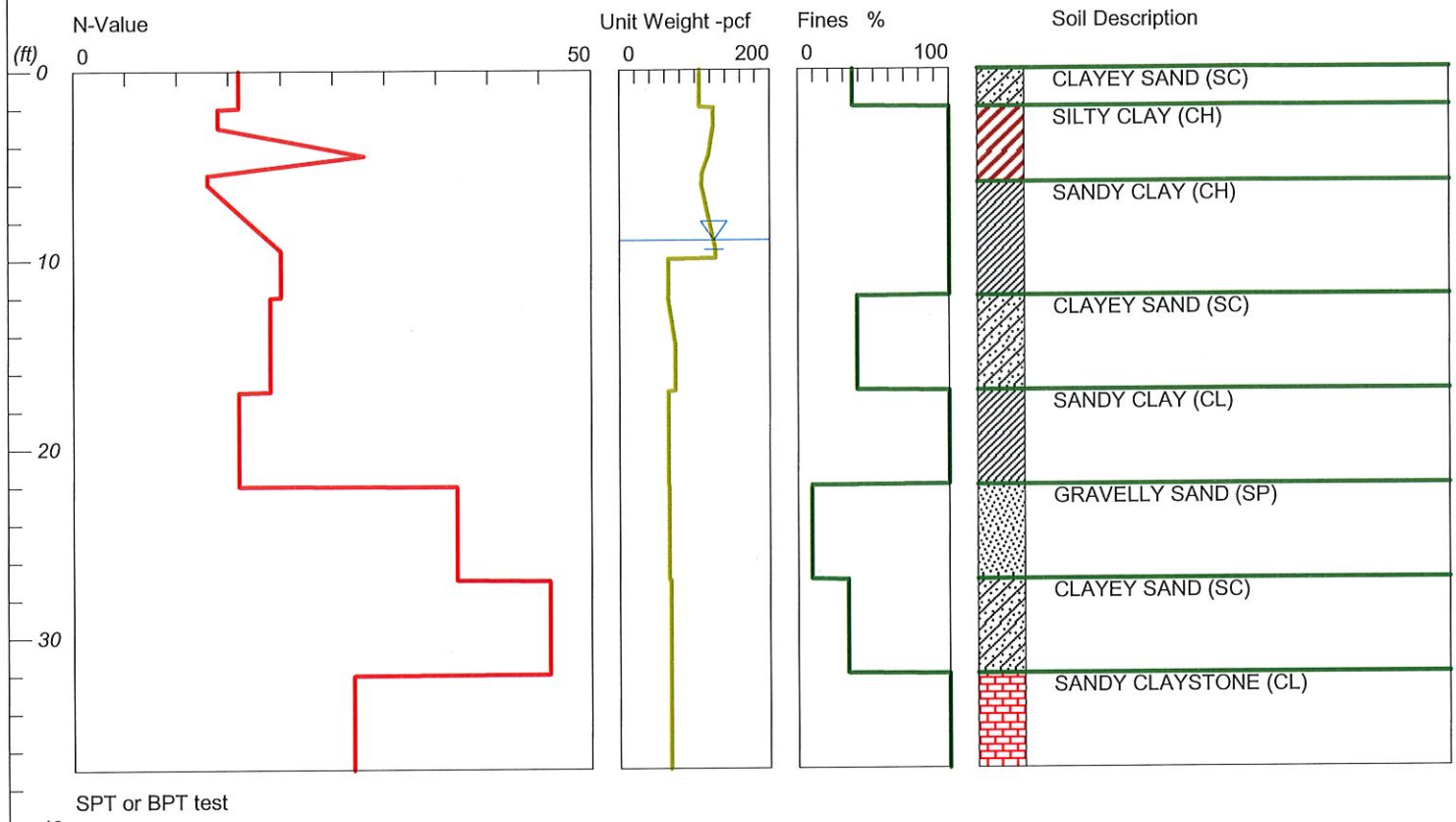
1 atm (atmosphere) = 1 tsf (ton/ft2)
CRRm Cyclic resistance ratio from soils
CSRsf Cyclic stress ratio induced by a given earthquake (with user request factor of safety)
F.S. Factor of Safety against liquefaction, F.S.=CRRm/CSRsf
S_sat Settlement from saturated sands
S_dry Settlement from Unsaturated Sands
S_all Total Settlement from Saturated and Unsaturated Sands
NoLiq No-Liquefy Soils

LIQUEFACTION ANALYSIS

VETERANS MEMORIAL SENIOR CENTER AND YMCA COMPLEX

Hole No.=EB-10 Water Depth=9.00 ft

Magnitude=8.50
Acceleration=0.741g

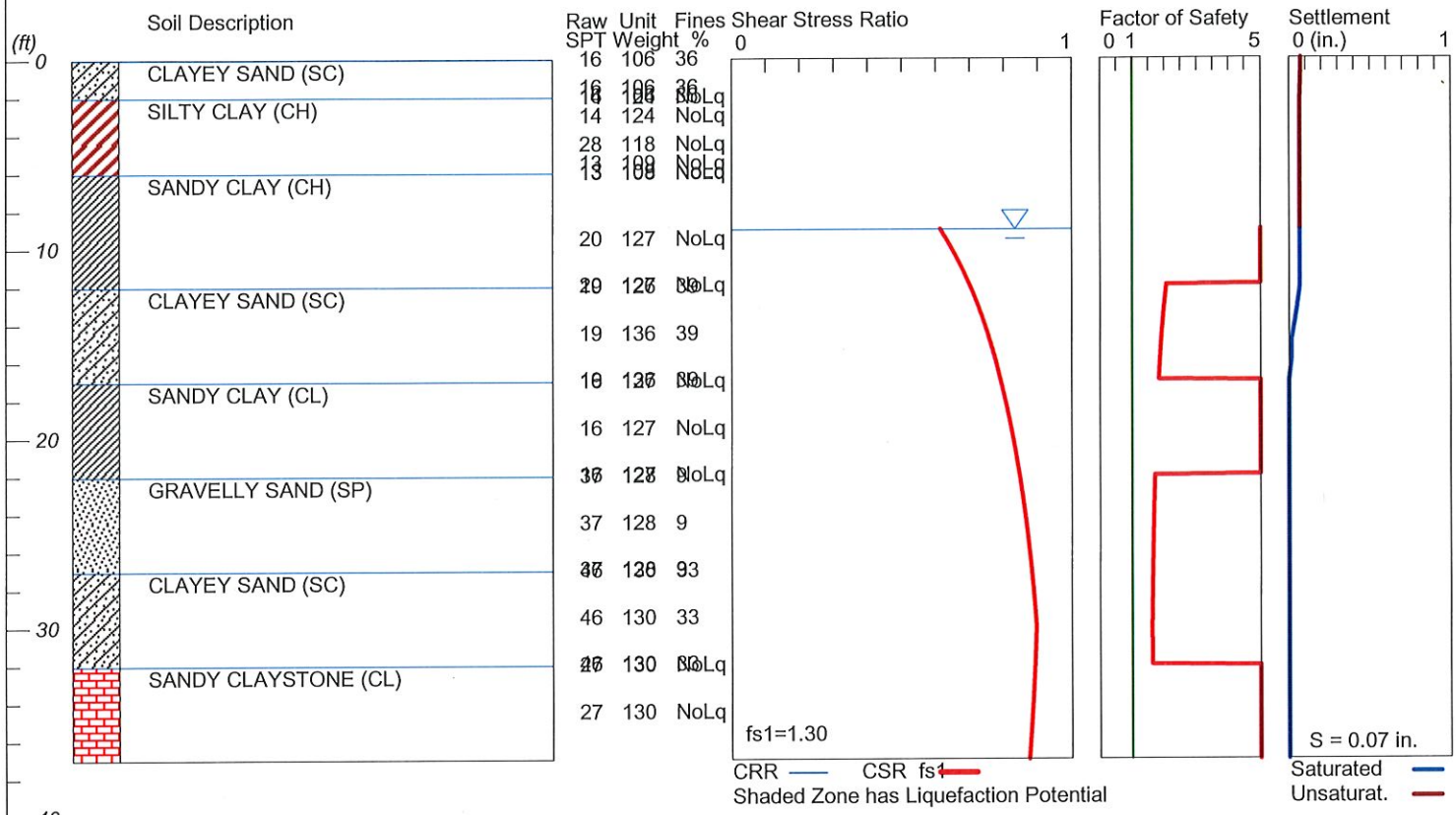


LIQUEFACTION ANALYSIS

VETERANS MEMORIAL SENIOR CENTER AND YMCA COMPLEX

Hole No.=EB-10 Water Depth=9.00 ft

Magnitude=8.50
Acceleration=0.741g



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LIQUEFACTION ANALYSIS SUMMARY
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Input File Name: \\CCISERVER\Shared Folders\Rough Drafts\Grant Foster Rough Drafts\Liquefy Pro Data Files grant\1398.1 Redwood City, Veterans Memorial Senior Center and YMCA Complex, EB-10.liq
Title: VETERANS MEMORIAL SENIOR CENTER AND YMCA COMPLEX
Subtitle: City of Redwood City

Surface Elev.=
Hole No.=EB-10
Depth of Hole= 37.00 ft
Water Table during Earthquake= 9.00 ft
Water Table during In-Situ Testing= 10.00 ft
Max. Acceleration= 0.74 g
Earthquake Magnitude= 8.50

Input Data:
Surface Elev.=
Hole No.=EB-10
Depth of Hole=37.00 ft
Water Table during Earthquake= 9.00 ft
Water Table during In-Situ Testing= 10.00 ft
Max. Acceleration=0.74 g
Earthquake Magnitude=8.50
No-Liquefiable Soils: Based on Analysis

1. SPT or BPT Calculation.
2. Settlement Analysis Method: Tokimatsu, M-correction
3. Fines Correction for Liquefaction: Idriss/Seed
4. Fine Correction for Settlement: During Liquefaction*
5. Settlement Calculation in: All zones*
6. Hammer Energy Ratio, Ce = 1.25
7. Borehole Diameter, Cb= 1
8. Sampling Method, Cs= 1
9. User request factor of safety (apply to CSR) , User= 1.3
   Plot one CSR curve (fs1=User)
10. Use Curve Smoothing: Yes*

* Recommended Options

In-Situ Test Data:

Depth ft	SPT	gamma pcf	Fines %
0.00	16.00	106.00	36.00
1.50	16.00	106.00	36.00
1.95	16.00	106.00	36.00
2.00	14.00	124.00	NoLiq
3.00	14.00	124.00	NoLiq
4.50	28.00	118.00	NoLiq
5.50	13.00	109.00	NoLiq
5.95	13.00	109.00	NoLiq
6.00	13.00	108.00	NoLiq
9.50	20.00	127.00	NoLiq
11.95	20.00	127.00	NoLiq
12.00	19.00	126.00	39.00
14.50	19.00	136.00	39.00
16.95	19.00	136.00	39.00
17.00	16.00	127.00	NoLiq
19.50	16.00	127.00	NoLiq
21.95	16.00	127.00	NoLiq
22.00	37.00	128.00	9.00
24.50	37.00	128.00	9.00
26.95	37.00	128.00	9.00
27.00	46.00	130.00	33.00
29.50	46.00	130.00	33.00
31.95	46.00	130.00	33.00
32.00	27.00	130.00	NoLiq
34.50	27.00	130.00	NoLiq

Output Results:

Settlement of Saturated Sands=0.07 in.
Settlement of Unsaturated Sands=0.01 in.
Total Settlement of Saturated and Unsaturated Sands=0.07 in.
Differential Settlement=0.036 to 0.048 in.

Depth ft	CRRm	CSRfs	F.S.	S_sat. in.	S_dry in.	S_all in.
0.00	1.45	0.63	5.00	0.07	0.01	0.07
0.05	1.45	0.63	5.00	0.07	0.01	0.07
0.10	1.45	0.63	5.00	0.07	0.01	0.07
0.15	1.45	0.63	5.00	0.07	0.01	0.07
0.20	1.45	0.63	5.00	0.07	0.01	0.07
0.25	1.45	0.63	5.00	0.07	0.01	0.07
0.30	1.45	0.63	5.00	0.07	0.01	0.07
0.35	1.45	0.63	5.00	0.07	0.01	0.07
0.40	1.45	0.63	5.00	0.07	0.00	0.07
0.45	1.45	0.63	5.00	0.07	0.00	0.07
0.50	1.45	0.63	5.00	0.07	0.00	0.07
0.55	1.45	0.63	5.00	0.07	0.00	0.07
0.60	1.45	0.63	5.00	0.07	0.00	0.07
0.65	1.45	0.63	5.00	0.07	0.00	0.07
0.70	1.45	0.63	5.00	0.07	0.00	0.07
0.75	1.45	0.63	5.00	0.07	0.00	0.07
0.80	1.45	0.62	5.00	0.07	0.00	0.07
0.85	1.45	0.62	5.00	0.07	0.00	0.07
0.90	1.45	0.62	5.00	0.07	0.00	0.07
0.95	1.45	0.62	5.00	0.07	0.00	0.07
1.00	1.45	0.62	5.00	0.07	0.00	0.07
1.05	1.45	0.62	5.00	0.07	0.00	0.07
1.10	1.45	0.62	5.00	0.07	0.00	0.07
1.15	1.45	0.62	5.00	0.07	0.00	0.07
1.20	1.45	0.62	5.00	0.07	0.00	0.07
1.25	1.45	0.62	5.00	0.07	0.00	0.07
1.30	1.45	0.62	5.00	0.07	0.00	0.07
1.35	1.45	0.62	5.00	0.07	0.00	0.07
1.40	1.45	0.62	5.00	0.07	0.00	0.07
1.45	1.45	0.62	5.00	0.07	0.00	0.07
1.50	1.45	0.62	5.00	0.07	0.00	0.07
1.55	1.45	0.62	5.00	0.07	0.00	0.07
1.60	1.45	0.62	5.00	0.07	0.00	0.07
1.65	1.45	0.62	5.00	0.07	0.00	0.07
1.70	1.45	0.62	5.00	0.07	0.00	0.07
1.75	1.45	0.62	5.00	0.07	0.00	0.07
1.80	1.45	0.62	5.00	0.07	0.00	0.07
1.85	1.45	0.62	5.00	0.07	0.00	0.07
1.90	1.45	0.62	5.00	0.07	0.00	0.07
1.95	1.45	0.62	5.00	0.07	0.00	0.07
2.00	1.45	0.62	5.00	0.07	0.00	0.07
2.05	2.00	0.62	5.00	0.07	0.00	0.07
2.10	2.00	0.62	5.00	0.07	0.00	0.07
2.15	2.00	0.62	5.00	0.07	0.00	0.07
2.20	2.00	0.62	5.00	0.07	0.00	0.07
2.25	2.00	0.62	5.00	0.07	0.00	0.07
2.30	2.00	0.62	5.00	0.07	0.00	0.07
2.35	2.00	0.62	5.00	0.07	0.00	0.07
2.40	2.00	0.62	5.00	0.07	0.00	0.07
2.45	2.00	0.62	5.00	0.07	0.00	0.07
2.50	2.00	0.62	5.00	0.07	0.00	0.07
2.55	2.00	0.62	5.00	0.07	0.00	0.07
2.60	2.00	0.62	5.00	0.07	0.00	0.07
2.65	2.00	0.62	5.00	0.07	0.00	0.07
2.70	2.00	0.62	5.00	0.07	0.00	0.07
2.75	2.00	0.62	5.00	0.07	0.00	0.07
2.80	2.00	0.62	5.00	0.07	0.00	0.07
2.85	2.00	0.62	5.00	0.07	0.00	0.07
2.90	2.00	0.62	5.00	0.07	0.00	0.07
2.95	2.00	0.62	5.00	0.07	0.00	0.07
3.00	2.00	0.62	5.00	0.07	0.00	0.07
3.05	2.00	0.62	5.00	0.07	0.00	0.07
3.10	2.00	0.62	5.00	0.07	0.00	0.07
3.15	2.00	0.62	5.00	0.07	0.00	0.07
3.20	2.00	0.62	5.00	0.07	0.00	0.07
3.25	2.00	0.62	5.00	0.07	0.00	0.07

3.30	2.00	0.62	5.00	0.07	0.00	0.07
3.35	2.00	0.62	5.00	0.07	0.00	0.07
3.40	2.00	0.62	5.00	0.07	0.00	0.07
3.45	2.00	0.62	5.00	0.07	0.00	0.07
3.50	2.00	0.62	5.00	0.07	0.00	0.07
3.55	2.00	0.62	5.00	0.07	0.00	0.07
3.60	2.00	0.62	5.00	0.07	0.00	0.07
3.65	2.00	0.62	5.00	0.07	0.00	0.07
3.70	2.00	0.62	5.00	0.07	0.00	0.07
3.75	2.00	0.62	5.00	0.07	0.00	0.07
3.80	2.00	0.62	5.00	0.07	0.00	0.07
3.85	2.00	0.62	5.00	0.07	0.00	0.07
3.90	2.00	0.62	5.00	0.07	0.00	0.07
3.95	2.00	0.62	5.00	0.07	0.00	0.07
4.00	2.00	0.62	5.00	0.07	0.00	0.07
4.05	2.00	0.62	5.00	0.07	0.00	0.07
4.10	2.00	0.62	5.00	0.07	0.00	0.07
4.15	2.00	0.62	5.00	0.07	0.00	0.07
4.20	2.00	0.62	5.00	0.07	0.00	0.07
4.25	2.00	0.62	5.00	0.07	0.00	0.07
4.30	2.00	0.62	5.00	0.07	0.00	0.07
4.35	2.00	0.62	5.00	0.07	0.00	0.07
4.40	2.00	0.62	5.00	0.07	0.00	0.07
4.45	2.00	0.62	5.00	0.07	0.00	0.07
4.50	2.00	0.62	5.00	0.07	0.00	0.07
4.55	2.00	0.62	5.00	0.07	0.00	0.07
4.60	2.00	0.62	5.00	0.07	0.00	0.07
4.65	2.00	0.62	5.00	0.07	0.00	0.07
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4.75	2.00	0.62	5.00	0.07	0.00	0.07
4.80	2.00	0.62	5.00	0.07	0.00	0.07
4.85	2.00	0.62	5.00	0.07	0.00	0.07
4.90	2.00	0.62	5.00	0.07	0.00	0.07
4.95	2.00	0.62	5.00	0.07	0.00	0.07
5.00	2.00	0.62	5.00	0.07	0.00	0.07
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6.85	2.00	0.62	5.00	0.07	0.00	0.07
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6.95	2.00	0.62	5.00	0.07	0.00	0.07
7.00	2.00	0.62	5.00	0.07	0.00	0.07
7.05	2.00	0.62	5.00	0.07	0.00	0.07

7.10	2.00	0.62	5.00	0.07	0.00	0.07
7.15	2.00	0.62	5.00	0.07	0.00	0.07
7.20	2.00	0.62	5.00	0.07	0.00	0.07
7.25	2.00	0.62	5.00	0.07	0.00	0.07
7.30	2.00	0.62	5.00	0.07	0.00	0.07
7.35	2.00	0.62	5.00	0.07	0.00	0.07
7.40	2.00	0.62	5.00	0.07	0.00	0.07
7.45	2.00	0.62	5.00	0.07	0.00	0.07
7.50	2.00	0.62	5.00	0.07	0.00	0.07
7.55	2.00	0.62	5.00	0.07	0.00	0.07
7.60	2.00	0.62	5.00	0.07	0.00	0.07
7.65	2.00	0.61	5.00	0.07	0.00	0.07
7.70	2.00	0.61	5.00	0.07	0.00	0.07
7.75	2.00	0.61	5.00	0.07	0.00	0.07
7.80	2.00	0.61	5.00	0.07	0.00	0.07
7.85	2.00	0.61	5.00	0.07	0.00	0.07
7.90	2.00	0.61	5.00	0.07	0.00	0.07
7.95	2.00	0.61	5.00	0.07	0.00	0.07
8.00	2.00	0.61	5.00	0.07	0.00	0.07
8.05	2.00	0.61	5.00	0.07	0.00	0.07
8.10	2.00	0.61	5.00	0.07	0.00	0.07
8.15	2.00	0.61	5.00	0.07	0.00	0.07
8.20	2.00	0.61	5.00	0.07	0.00	0.07
8.25	2.00	0.61	5.00	0.07	0.00	0.07
8.30	2.00	0.61	5.00	0.07	0.00	0.07
8.35	2.00	0.61	5.00	0.07	0.00	0.07
8.40	2.00	0.61	5.00	0.07	0.00	0.07
8.45	2.00	0.61	5.00	0.07	0.00	0.07
8.50	2.00	0.61	5.00	0.07	0.00	0.07
8.55	2.00	0.61	5.00	0.07	0.00	0.07
8.60	2.00	0.61	5.00	0.07	0.00	0.07
8.65	2.00	0.61	5.00	0.07	0.00	0.07
8.70	2.00	0.61	5.00	0.07	0.00	0.07
8.75	2.00	0.61	5.00	0.07	0.00	0.07
8.80	2.00	0.61	5.00	0.07	0.00	0.07
8.85	2.00	0.61	5.00	0.07	0.00	0.07
8.90	2.00	0.61	5.00	0.07	0.00	0.07
8.95	2.00	0.61	5.00	0.07	0.00	0.07
9.00	2.00	0.61	5.00	0.07	0.00	0.07
9.05	2.00	0.61	5.00	0.07	0.00	0.07
9.10	2.00	0.62	5.00	0.07	0.00	0.07
9.15	2.00	0.62	5.00	0.07	0.00	0.07
9.20	2.00	0.62	5.00	0.07	0.00	0.07
9.25	2.00	0.62	5.00	0.07	0.00	0.07
9.30	2.00	0.62	5.00	0.07	0.00	0.07
9.35	2.00	0.63	5.00	0.07	0.00	0.07
9.40	2.00	0.63	5.00	0.07	0.00	0.07
9.45	2.00	0.63	5.00	0.07	0.00	0.07
9.50	2.00	0.63	5.00	0.07	0.00	0.07
9.55	2.00	0.63	5.00	0.07	0.00	0.07
9.60	2.00	0.63	5.00	0.07	0.00	0.07
9.65	2.00	0.64	5.00	0.07	0.00	0.07
9.70	2.00	0.64	5.00	0.07	0.00	0.07
9.75	2.00	0.64	5.00	0.07	0.00	0.07
9.80	2.00	0.64	5.00	0.07	0.00	0.07
9.85	2.00	0.64	5.00	0.07	0.00	0.07
9.90	2.00	0.64	5.00	0.07	0.00	0.07
9.95	2.00	0.64	5.00	0.07	0.00	0.07
10.00	2.00	0.65	5.00	0.07	0.00	0.07
10.05	2.00	0.65	5.00	0.07	0.00	0.07
10.10	2.00	0.65	5.00	0.07	0.00	0.07
10.15	2.00	0.65	5.00	0.07	0.00	0.07
10.20	2.00	0.65	5.00	0.07	0.00	0.07
10.25	2.00	0.65	5.00	0.07	0.00	0.07
10.30	2.00	0.66	5.00	0.07	0.00	0.07
10.35	2.00	0.66	5.00	0.07	0.00	0.07
10.40	2.00	0.66	5.00	0.07	0.00	0.07
10.45	2.00	0.66	5.00	0.07	0.00	0.07
10.50	2.00	0.66	5.00	0.07	0.00	0.07
10.55	2.00	0.66	5.00	0.07	0.00	0.07
10.60	2.00	0.66	5.00	0.07	0.00	0.07
10.65	2.00	0.67	5.00	0.07	0.00	0.07
10.70	2.00	0.67	5.00	0.07	0.00	0.07
10.75	2.00	0.67	5.00	0.07	0.00	0.07
10.80	2.00	0.67	5.00	0.07	0.00	0.07
10.85	2.00	0.67	5.00	0.07	0.00	0.07

10.90	2.00	0.67	5.00	0.07	0.00	0.07
10.95	2.00	0.67	5.00	0.07	0.00	0.07
11.00	2.00	0.68	5.00	0.07	0.00	0.07
11.05	2.00	0.68	5.00	0.07	0.00	0.07
11.10	2.00	0.68	5.00	0.07	0.00	0.07
11.15	2.00	0.68	5.00	0.07	0.00	0.07
11.20	2.00	0.68	5.00	0.07	0.00	0.07
11.25	2.00	0.68	5.00	0.07	0.00	0.07
11.30	2.00	0.68	5.00	0.07	0.00	0.07
11.35	2.00	0.69	5.00	0.07	0.00	0.07
11.40	2.00	0.69	5.00	0.07	0.00	0.07
11.45	2.00	0.69	5.00	0.07	0.00	0.07
11.50	2.00	0.69	5.00	0.07	0.00	0.07
11.55	2.00	0.69	5.00	0.07	0.00	0.07
11.60	2.00	0.69	5.00	0.07	0.00	0.07
11.65	2.00	0.69	5.00	0.07	0.00	0.07
11.70	2.00	0.69	5.00	0.07	0.00	0.07
11.75	2.00	0.70	5.00	0.07	0.00	0.07
11.80	2.00	0.70	5.00	0.07	0.00	0.07
11.85	2.00	0.70	5.00	0.07	0.00	0.07
11.90	2.00	0.70	5.00	0.07	0.00	0.07
11.95	1.45	0.70	2.07	0.07	0.00	0.07
12.00	1.45	0.70	2.07	0.07	0.00	0.07
12.05	1.45	0.70	2.07	0.07	0.00	0.07
12.10	1.45	0.70	2.06	0.07	0.00	0.07
12.15	1.45	0.71	2.06	0.07	0.00	0.07
12.20	1.45	0.71	2.05	0.06	0.00	0.06
12.25	1.45	0.71	2.05	0.06	0.00	0.06
12.30	1.45	0.71	2.05	0.06	0.00	0.06
12.35	1.45	0.71	2.04	0.06	0.00	0.06
12.40	1.45	0.71	2.04	0.06	0.00	0.06
12.45	1.45	0.71	2.04	0.06	0.00	0.06
12.50	1.45	0.71	2.03	0.06	0.00	0.06
12.55	1.45	0.71	2.03	0.06	0.00	0.06
12.60	1.45	0.72	2.03	0.06	0.00	0.06
12.65	1.45	0.72	2.02	0.06	0.00	0.06
12.70	1.45	0.72	2.02	0.06	0.00	0.06
12.75	1.45	0.72	2.02	0.06	0.00	0.06
12.80	1.45	0.72	2.02	0.06	0.00	0.06
12.85	1.45	0.72	2.01	0.05	0.00	0.05
12.90	1.45	0.72	2.01	0.05	0.00	0.05
12.95	1.45	0.72	2.01	0.05	0.00	0.05
13.00	1.45	0.72	2.00	0.05	0.00	0.05
13.05	1.45	0.73	2.00	0.05	0.00	0.05
13.10	1.45	0.73	2.00	0.05	0.00	0.05
13.15	1.45	0.73	1.99	0.05	0.00	0.05
13.20	1.45	0.73	1.99	0.05	0.00	0.05
13.25	1.45	0.73	1.99	0.05	0.00	0.05
13.30	1.45	0.73	1.99	0.05	0.00	0.05
13.35	1.45	0.73	1.98	0.05	0.00	0.05
13.40	1.45	0.73	1.98	0.04	0.00	0.04
13.45	1.45	0.73	1.98	0.04	0.00	0.04
13.50	1.45	0.73	1.97	0.04	0.00	0.04
13.55	1.45	0.74	1.97	0.04	0.00	0.04
13.60	1.45	0.74	1.97	0.04	0.00	0.04
13.65	1.45	0.74	1.97	0.04	0.00	0.04
13.70	1.45	0.74	1.96	0.04	0.00	0.04
13.75	1.45	0.74	1.96	0.04	0.00	0.04
13.80	1.45	0.74	1.96	0.04	0.00	0.04
13.85	1.45	0.74	1.96	0.04	0.00	0.04
13.90	1.45	0.74	1.95	0.04	0.00	0.04
13.95	1.45	0.74	1.95	0.03	0.00	0.03
14.00	1.45	0.74	1.95	0.03	0.00	0.03
14.05	1.45	0.75	1.95	0.03	0.00	0.03
14.10	1.45	0.75	1.94	0.03	0.00	0.03
14.15	1.45	0.75	1.94	0.03	0.00	0.03
14.20	1.45	0.75	1.94	0.03	0.00	0.03
14.25	1.45	0.75	1.94	0.03	0.00	0.03
14.30	1.45	0.75	1.94	0.03	0.00	0.03
14.35	1.45	0.75	1.93	0.03	0.00	0.03
14.40	1.45	0.75	1.93	0.03	0.00	0.03
14.45	1.45	0.75	1.93	0.02	0.00	0.02
14.50	1.45	0.75	1.93	0.02	0.00	0.02
14.55	1.45	0.75	1.92	0.02	0.00	0.02
14.60	1.45	0.76	1.92	0.02	0.00	0.02
14.65	1.45	0.76	1.92	0.02	0.00	0.02

14.70	1.45	0.76	1.92	0.02	0.00	0.02
14.75	1.45	0.76	1.92	0.02	0.00	0.02
14.80	1.45	0.76	1.91	0.02	0.00	0.02
14.85	1.45	0.76	1.91	0.02	0.00	0.02
14.90	1.45	0.76	1.91	0.02	0.00	0.02
14.95	1.45	0.76	1.91	0.02	0.00	0.02
15.00	1.45	0.76	1.90	0.02	0.00	0.02
15.05	1.45	0.76	1.90	0.02	0.00	0.02
15.10	1.45	0.76	1.90	0.02	0.00	0.02
15.15	1.45	0.76	1.90	0.02	0.00	0.02
15.20	1.45	0.77	1.90	0.02	0.00	0.02
15.25	1.45	0.77	1.89	0.02	0.00	0.02
15.30	1.45	0.77	1.89	0.02	0.00	0.02
15.35	1.45	0.77	1.89	0.02	0.00	0.02
15.40	1.45	0.77	1.89	0.02	0.00	0.02
15.45	1.45	0.77	1.89	0.02	0.00	0.02
15.50	1.45	0.77	1.89	0.02	0.00	0.02
15.55	1.45	0.77	1.88	0.02	0.00	0.02
15.60	1.45	0.77	1.88	0.02	0.00	0.02
15.65	1.45	0.77	1.88	0.02	0.00	0.02
15.70	1.45	0.77	1.88	0.02	0.00	0.02
15.75	1.45	0.77	1.88	0.02	0.00	0.02
15.80	1.45	0.77	1.87	0.02	0.00	0.02
15.85	1.45	0.78	1.87	0.02	0.00	0.02
15.90	1.45	0.78	1.87	0.02	0.00	0.02
15.95	1.45	0.78	1.87	0.01	0.00	0.01
16.00	1.45	0.78	1.87	0.01	0.00	0.01
16.05	1.45	0.78	1.87	0.01	0.00	0.01
16.10	1.45	0.78	1.86	0.01	0.00	0.01
16.15	1.45	0.78	1.86	0.01	0.00	0.01
16.20	1.45	0.78	1.86	0.01	0.00	0.01
16.25	1.45	0.78	1.86	0.01	0.00	0.01
16.30	1.45	0.78	1.86	0.01	0.00	0.01
16.35	1.45	0.78	1.85	0.01	0.00	0.01
16.40	1.45	0.78	1.85	0.01	0.00	0.01
16.45	1.45	0.78	1.85	0.01	0.00	0.01
16.50	1.45	0.78	1.85	0.01	0.00	0.01
16.55	1.45	0.79	1.85	0.01	0.00	0.01
16.60	1.45	0.79	1.85	0.01	0.00	0.01
16.65	1.45	0.79	1.85	0.01	0.00	0.01
16.70	1.45	0.79	1.84	0.00	0.00	0.00
16.75	1.45	0.79	1.84	0.00	0.00	0.00
16.80	1.45	0.79	1.84	0.00	0.00	0.00
16.85	1.45	0.79	1.84	0.00	0.00	0.00
16.90	1.45	0.79	1.84	0.00	0.00	0.00
16.95	1.45	0.79	1.84	0.00	0.00	0.00
17.00	2.00	0.79	5.00	0.00	0.00	0.00
17.05	2.00	0.79	5.00	0.00	0.00	0.00
17.10	2.00	0.79	5.00	0.00	0.00	0.00
17.15	2.00	0.79	5.00	0.00	0.00	0.00
17.20	2.00	0.79	5.00	0.00	0.00	0.00
17.25	2.00	0.79	5.00	0.00	0.00	0.00
17.30	2.00	0.80	5.00	0.00	0.00	0.00
17.35	2.00	0.80	5.00	0.00	0.00	0.00
17.40	2.00	0.80	5.00	0.00	0.00	0.00
17.45	2.00	0.80	5.00	0.00	0.00	0.00
17.50	2.00	0.80	5.00	0.00	0.00	0.00
17.55	2.00	0.80	5.00	0.00	0.00	0.00
17.60	2.00	0.80	5.00	0.00	0.00	0.00
17.65	2.00	0.80	5.00	0.00	0.00	0.00
17.70	2.00	0.80	5.00	0.00	0.00	0.00
17.75	2.00	0.80	5.00	0.00	0.00	0.00
17.80	2.00	0.80	5.00	0.00	0.00	0.00
17.85	2.00	0.80	5.00	0.00	0.00	0.00
17.90	2.00	0.80	5.00	0.00	0.00	0.00
17.95	2.00	0.80	5.00	0.00	0.00	0.00
18.00	2.00	0.80	5.00	0.00	0.00	0.00
18.05	2.00	0.81	5.00	0.00	0.00	0.00
18.10	2.00	0.81	5.00	0.00	0.00	0.00
18.15	2.00	0.81	5.00	0.00	0.00	0.00
18.20	2.00	0.81	5.00	0.00	0.00	0.00
18.25	2.00	0.81	5.00	0.00	0.00	0.00
18.30	2.00	0.81	5.00	0.00	0.00	0.00
18.35	2.00	0.81	5.00	0.00	0.00	0.00
18.40	2.00	0.81	5.00	0.00	0.00	0.00
18.45	2.00	0.81	5.00	0.00	0.00	0.00

18.50	2.00	0.81	5.00	0.00	0.00	0.00
18.55	2.00	0.81	5.00	0.00	0.00	0.00
18.60	2.00	0.81	5.00	0.00	0.00	0.00
18.65	2.00	0.81	5.00	0.00	0.00	0.00
18.70	2.00	0.81	5.00	0.00	0.00	0.00
18.75	2.00	0.81	5.00	0.00	0.00	0.00
18.80	2.00	0.81	5.00	0.00	0.00	0.00
18.85	2.00	0.81	5.00	0.00	0.00	0.00
18.90	2.00	0.82	5.00	0.00	0.00	0.00
18.95	2.00	0.82	5.00	0.00	0.00	0.00
19.00	2.00	0.82	5.00	0.00	0.00	0.00
19.05	2.00	0.82	5.00	0.00	0.00	0.00
19.10	2.00	0.82	5.00	0.00	0.00	0.00
19.15	2.00	0.82	5.00	0.00	0.00	0.00
19.20	2.00	0.82	5.00	0.00	0.00	0.00
19.25	2.00	0.82	5.00	0.00	0.00	0.00
19.30	2.00	0.82	5.00	0.00	0.00	0.00
19.35	2.00	0.82	5.00	0.00	0.00	0.00
19.40	2.00	0.82	5.00	0.00	0.00	0.00
19.45	2.00	0.82	5.00	0.00	0.00	0.00
19.50	2.00	0.82	5.00	0.00	0.00	0.00
19.55	2.00	0.82	5.00	0.00	0.00	0.00
19.60	2.00	0.82	5.00	0.00	0.00	0.00
19.65	2.00	0.82	5.00	0.00	0.00	0.00
19.70	2.00	0.82	5.00	0.00	0.00	0.00
19.75	2.00	0.82	5.00	0.00	0.00	0.00
19.80	2.00	0.83	5.00	0.00	0.00	0.00
19.85	2.00	0.83	5.00	0.00	0.00	0.00
19.90	2.00	0.83	5.00	0.00	0.00	0.00
19.95	2.00	0.83	5.00	0.00	0.00	0.00
20.00	2.00	0.83	5.00	0.00	0.00	0.00
20.05	2.00	0.83	5.00	0.00	0.00	0.00
20.10	2.00	0.83	5.00	0.00	0.00	0.00
20.15	2.00	0.83	5.00	0.00	0.00	0.00
20.20	2.00	0.83	5.00	0.00	0.00	0.00
20.25	2.00	0.83	5.00	0.00	0.00	0.00
20.30	2.00	0.83	5.00	0.00	0.00	0.00
20.35	2.00	0.83	5.00	0.00	0.00	0.00
20.40	2.00	0.83	5.00	0.00	0.00	0.00
20.45	2.00	0.83	5.00	0.00	0.00	0.00
20.50	2.00	0.83	5.00	0.00	0.00	0.00
20.55	2.00	0.83	5.00	0.00	0.00	0.00
20.60	2.00	0.83	5.00	0.00	0.00	0.00
20.65	2.00	0.83	5.00	0.00	0.00	0.00
20.70	2.00	0.83	5.00	0.00	0.00	0.00
20.75	2.00	0.84	5.00	0.00	0.00	0.00
20.80	2.00	0.84	5.00	0.00	0.00	0.00
20.85	2.00	0.84	5.00	0.00	0.00	0.00
20.90	2.00	0.84	5.00	0.00	0.00	0.00
20.95	2.00	0.84	5.00	0.00	0.00	0.00
21.00	2.00	0.84	5.00	0.00	0.00	0.00
21.05	2.00	0.84	5.00	0.00	0.00	0.00
21.10	2.00	0.84	5.00	0.00	0.00	0.00
21.15	2.00	0.84	5.00	0.00	0.00	0.00
21.20	2.00	0.84	5.00	0.00	0.00	0.00
21.25	2.00	0.84	5.00	0.00	0.00	0.00
21.30	2.00	0.84	5.00	0.00	0.00	0.00
21.35	2.00	0.84	5.00	0.00	0.00	0.00
21.40	2.00	0.84	5.00	0.00	0.00	0.00
21.45	2.00	0.84	5.00	0.00	0.00	0.00
21.50	2.00	0.84	5.00	0.00	0.00	0.00
21.55	2.00	0.84	5.00	0.00	0.00	0.00
21.60	2.00	0.84	5.00	0.00	0.00	0.00
21.65	2.00	0.84	5.00	0.00	0.00	0.00
21.70	2.00	0.84	5.00	0.00	0.00	0.00
21.75	2.00	0.84	5.00	0.00	0.00	0.00
21.80	2.00	0.85	5.00	0.00	0.00	0.00
21.85	2.00	0.85	5.00	0.00	0.00	0.00
21.90	2.00	0.85	5.00	0.00	0.00	0.00
21.95	2.00	0.85	5.00	0.00	0.00	0.00
22.00	1.45	0.85	1.71	0.00	0.00	0.00
22.05	1.45	0.85	1.71	0.00	0.00	0.00
22.10	1.45	0.85	1.71	0.00	0.00	0.00
22.15	1.45	0.85	1.71	0.00	0.00	0.00
22.20	1.45	0.85	1.71	0.00	0.00	0.00
22.25	1.45	0.85	1.71	0.00	0.00	0.00

22.30	1.45	0.85	1.71	0.00	0.00	0.00
22.35	1.45	0.85	1.71	0.00	0.00	0.00
22.40	1.45	0.85	1.71	0.00	0.00	0.00
22.45	1.45	0.85	1.71	0.00	0.00	0.00
22.50	1.45	0.85	1.70	0.00	0.00	0.00
22.55	1.45	0.85	1.70	0.00	0.00	0.00
22.60	1.45	0.85	1.70	0.00	0.00	0.00
22.65	1.45	0.85	1.70	0.00	0.00	0.00
22.70	1.45	0.85	1.70	0.00	0.00	0.00
22.75	1.45	0.85	1.70	0.00	0.00	0.00
22.80	1.45	0.85	1.70	0.00	0.00	0.00
22.85	1.45	0.85	1.70	0.00	0.00	0.00
22.90	1.45	0.85	1.70	0.00	0.00	0.00
22.95	1.45	0.85	1.70	0.00	0.00	0.00
23.00	1.45	0.86	1.70	0.00	0.00	0.00
23.05	1.45	0.86	1.70	0.00	0.00	0.00
23.10	1.45	0.86	1.70	0.00	0.00	0.00
23.15	1.45	0.86	1.69	0.00	0.00	0.00
23.20	1.45	0.86	1.69	0.00	0.00	0.00
23.25	1.45	0.86	1.69	0.00	0.00	0.00
23.30	1.45	0.86	1.69	0.00	0.00	0.00
23.35	1.45	0.86	1.69	0.00	0.00	0.00
23.40	1.45	0.86	1.69	0.00	0.00	0.00
23.45	1.45	0.86	1.69	0.00	0.00	0.00
23.50	1.45	0.86	1.69	0.00	0.00	0.00
23.55	1.45	0.86	1.69	0.00	0.00	0.00
23.60	1.45	0.86	1.69	0.00	0.00	0.00
23.65	1.45	0.86	1.69	0.00	0.00	0.00
23.70	1.45	0.86	1.69	0.00	0.00	0.00
23.75	1.45	0.86	1.69	0.00	0.00	0.00
23.80	1.45	0.86	1.68	0.00	0.00	0.00
23.85	1.45	0.86	1.68	0.00	0.00	0.00
23.90	1.45	0.86	1.68	0.00	0.00	0.00
23.95	1.45	0.86	1.68	0.00	0.00	0.00
24.00	1.45	0.86	1.68	0.00	0.00	0.00
24.05	1.45	0.86	1.68	0.00	0.00	0.00
24.10	1.45	0.86	1.68	0.00	0.00	0.00
24.15	1.45	0.86	1.68	0.00	0.00	0.00
24.20	1.45	0.86	1.68	0.00	0.00	0.00
24.25	1.45	0.86	1.68	0.00	0.00	0.00
24.30	1.45	0.86	1.68	0.00	0.00	0.00
24.35	1.45	0.87	1.68	0.00	0.00	0.00
24.40	1.45	0.87	1.68	0.00	0.00	0.00
24.45	1.45	0.87	1.68	0.00	0.00	0.00
24.50	1.45	0.87	1.68	0.00	0.00	0.00
24.55	1.45	0.87	1.67	0.00	0.00	0.00
24.60	1.45	0.87	1.67	0.00	0.00	0.00
24.65	1.45	0.87	1.67	0.00	0.00	0.00
24.70	1.45	0.87	1.67	0.00	0.00	0.00
24.75	1.45	0.87	1.67	0.00	0.00	0.00
24.80	1.45	0.87	1.67	0.00	0.00	0.00
24.85	1.45	0.87	1.67	0.00	0.00	0.00
24.90	1.45	0.87	1.67	0.00	0.00	0.00
24.95	1.45	0.87	1.67	0.00	0.00	0.00
25.00	1.45	0.87	1.67	0.00	0.00	0.00
25.05	1.45	0.87	1.67	0.00	0.00	0.00
25.10	1.45	0.87	1.67	0.00	0.00	0.00
25.15	1.45	0.87	1.67	0.00	0.00	0.00
25.20	1.45	0.87	1.67	0.00	0.00	0.00
25.25	1.45	0.87	1.67	0.00	0.00	0.00
25.30	1.45	0.87	1.66	0.00	0.00	0.00
25.35	1.45	0.87	1.66	0.00	0.00	0.00
25.40	1.45	0.87	1.66	0.00	0.00	0.00
25.45	1.45	0.87	1.66	0.00	0.00	0.00
25.50	1.45	0.87	1.66	0.00	0.00	0.00
25.55	1.45	0.87	1.66	0.00	0.00	0.00
25.60	1.45	0.87	1.66	0.00	0.00	0.00
25.65	1.45	0.87	1.66	0.00	0.00	0.00
25.70	1.45	0.87	1.66	0.00	0.00	0.00
25.75	1.45	0.87	1.66	0.00	0.00	0.00
25.80	1.45	0.87	1.66	0.00	0.00	0.00
25.85	1.45	0.88	1.66	0.00	0.00	0.00
25.90	1.45	0.88	1.66	0.00	0.00	0.00
25.95	1.45	0.88	1.66	0.00	0.00	0.00
26.00	1.45	0.88	1.66	0.00	0.00	0.00
26.05	1.45	0.88	1.66	0.00	0.00	0.00

26.10	1.45	0.88	1.66	0.00	0.00	0.00
26.15	1.45	0.88	1.65	0.00	0.00	0.00
26.20	1.45	0.88	1.65	0.00	0.00	0.00
26.25	1.45	0.88	1.65	0.00	0.00	0.00
26.30	1.45	0.88	1.65	0.00	0.00	0.00
26.35	1.45	0.88	1.65	0.00	0.00	0.00
26.40	1.45	0.88	1.65	0.00	0.00	0.00
26.45	1.45	0.88	1.65	0.00	0.00	0.00
26.50	1.45	0.88	1.65	0.00	0.00	0.00
26.55	1.45	0.88	1.65	0.00	0.00	0.00
26.60	1.45	0.88	1.65	0.00	0.00	0.00
26.65	1.45	0.88	1.65	0.00	0.00	0.00
26.70	1.45	0.88	1.65	0.00	0.00	0.00
26.75	1.45	0.88	1.65	0.00	0.00	0.00
26.80	1.45	0.88	1.65	0.00	0.00	0.00
26.85	1.45	0.88	1.65	0.00	0.00	0.00
26.90	1.45	0.88	1.65	0.00	0.00	0.00
26.95	1.45	0.88	1.65	0.00	0.00	0.00
27.00	1.45	0.88	1.65	0.00	0.00	0.00
27.05	1.45	0.88	1.65	0.00	0.00	0.00
27.10	1.45	0.88	1.64	0.00	0.00	0.00
27.15	1.45	0.88	1.64	0.00	0.00	0.00
27.20	1.45	0.88	1.64	0.00	0.00	0.00
27.25	1.45	0.88	1.64	0.00	0.00	0.00
27.30	1.45	0.88	1.64	0.00	0.00	0.00
27.35	1.45	0.88	1.64	0.00	0.00	0.00
27.40	1.45	0.88	1.64	0.00	0.00	0.00
27.45	1.45	0.88	1.64	0.00	0.00	0.00
27.50	1.45	0.88	1.64	0.00	0.00	0.00
27.55	1.45	0.88	1.64	0.00	0.00	0.00
27.60	1.45	0.88	1.64	0.00	0.00	0.00
27.65	1.45	0.89	1.64	0.00	0.00	0.00
27.70	1.45	0.89	1.64	0.00	0.00	0.00
27.75	1.45	0.89	1.64	0.00	0.00	0.00
27.80	1.45	0.89	1.64	0.00	0.00	0.00
27.85	1.45	0.89	1.64	0.00	0.00	0.00
27.90	1.45	0.89	1.64	0.00	0.00	0.00
27.95	1.45	0.89	1.64	0.00	0.00	0.00
28.00	1.45	0.89	1.64	0.00	0.00	0.00
28.05	1.45	0.89	1.64	0.00	0.00	0.00
28.10	1.45	0.89	1.64	0.00	0.00	0.00
28.15	1.45	0.89	1.63	0.00	0.00	0.00
28.20	1.45	0.89	1.63	0.00	0.00	0.00
28.25	1.45	0.89	1.63	0.00	0.00	0.00
28.30	1.45	0.89	1.63	0.00	0.00	0.00
28.35	1.45	0.89	1.63	0.00	0.00	0.00
28.40	1.45	0.89	1.63	0.00	0.00	0.00
28.45	1.45	0.89	1.63	0.00	0.00	0.00
28.50	1.45	0.89	1.63	0.00	0.00	0.00
28.55	1.45	0.89	1.63	0.00	0.00	0.00
28.60	1.45	0.89	1.63	0.00	0.00	0.00
28.65	1.45	0.89	1.63	0.00	0.00	0.00
28.70	1.45	0.89	1.63	0.00	0.00	0.00
28.75	1.45	0.89	1.63	0.00	0.00	0.00
28.80	1.45	0.89	1.63	0.00	0.00	0.00
28.85	1.45	0.89	1.63	0.00	0.00	0.00
28.90	1.45	0.89	1.63	0.00	0.00	0.00
28.95	1.45	0.89	1.63	0.00	0.00	0.00
29.00	1.45	0.89	1.63	0.00	0.00	0.00
29.05	1.45	0.89	1.63	0.00	0.00	0.00
29.10	1.45	0.89	1.63	0.00	0.00	0.00
29.15	1.45	0.89	1.63	0.00	0.00	0.00
29.20	1.45	0.89	1.63	0.00	0.00	0.00
29.25	1.45	0.89	1.63	0.00	0.00	0.00
29.30	1.45	0.89	1.63	0.00	0.00	0.00
29.35	1.45	0.89	1.63	0.00	0.00	0.00
29.40	1.45	0.89	1.62	0.00	0.00	0.00
29.45	1.45	0.89	1.62	0.00	0.00	0.00
29.50	1.45	0.89	1.62	0.00	0.00	0.00
29.55	1.45	0.89	1.62	0.00	0.00	0.00
29.60	1.45	0.89	1.62	0.00	0.00	0.00
29.65	1.45	0.89	1.62	0.00	0.00	0.00
29.70	1.45	0.89	1.62	0.00	0.00	0.00
29.75	1.45	0.89	1.62	0.00	0.00	0.00
29.80	1.45	0.89	1.62	0.00	0.00	0.00
29.85	1.45	0.90	1.62	0.00	0.00	0.00

29.90	1.45	0.90	1.62	0.00	0.00	0.00
29.95	1.45	0.90	1.62	0.00	0.00	0.00
30.00	1.45	0.90	1.62	0.00	0.00	0.00
30.05	1.45	0.90	1.62	0.00	0.00	0.00
30.10	1.45	0.90	1.62	0.00	0.00	0.00
30.15	1.45	0.90	1.62	0.00	0.00	0.00
30.20	1.45	0.90	1.62	0.00	0.00	0.00
30.25	1.45	0.90	1.62	0.00	0.00	0.00
30.30	1.45	0.89	1.62	0.00	0.00	0.00
30.35	1.45	0.89	1.62	0.00	0.00	0.00
30.40	1.45	0.89	1.62	0.00	0.00	0.00
30.45	1.45	0.89	1.62	0.00	0.00	0.00
30.50	1.45	0.89	1.62	0.00	0.00	0.00
30.55	1.45	0.89	1.62	0.00	0.00	0.00
30.60	1.45	0.89	1.62	0.00	0.00	0.00
30.65	1.45	0.89	1.62	0.00	0.00	0.00
30.70	1.45	0.89	1.62	0.00	0.00	0.00
30.75	1.45	0.89	1.62	0.00	0.00	0.00
30.80	1.45	0.89	1.62	0.00	0.00	0.00
30.85	1.45	0.89	1.62	0.00	0.00	0.00
30.90	1.45	0.89	1.62	0.00	0.00	0.00
30.95	1.45	0.89	1.62	0.00	0.00	0.00
31.00	1.45	0.89	1.62	0.00	0.00	0.00
31.05	1.45	0.89	1.62	0.00	0.00	0.00
31.10	1.45	0.89	1.62	0.00	0.00	0.00
31.15	1.45	0.89	1.62	0.00	0.00	0.00
31.20	1.45	0.89	1.62	0.00	0.00	0.00
31.25	1.45	0.89	1.62	0.00	0.00	0.00
31.30	1.45	0.89	1.63	0.00	0.00	0.00
31.35	1.45	0.89	1.63	0.00	0.00	0.00
31.40	1.45	0.89	1.63	0.00	0.00	0.00
31.45	1.45	0.89	1.63	0.00	0.00	0.00
31.50	1.45	0.89	1.63	0.00	0.00	0.00
31.55	1.45	0.89	1.63	0.00	0.00	0.00
31.60	1.45	0.89	1.63	0.00	0.00	0.00
31.65	1.45	0.89	1.63	0.00	0.00	0.00
31.70	1.45	0.89	1.63	0.00	0.00	0.00
31.75	1.45	0.89	1.63	0.00	0.00	0.00
31.80	1.45	0.89	1.63	0.00	0.00	0.00
31.85	1.45	0.89	1.63	0.00	0.00	0.00
31.90	1.45	0.89	1.63	0.00	0.00	0.00
31.95	1.45	0.89	1.63	0.00	0.00	0.00
32.00	1.45	0.89	1.63	0.00	0.00	0.00
32.05	2.00	0.89	5.00	0.00	0.00	0.00
32.10	2.00	0.89	5.00	0.00	0.00	0.00
32.15	2.00	0.89	5.00	0.00	0.00	0.00
32.20	2.00	0.89	5.00	0.00	0.00	0.00
32.25	2.00	0.89	5.00	0.00	0.00	0.00
32.30	2.00	0.89	5.00	0.00	0.00	0.00
32.35	2.00	0.89	5.00	0.00	0.00	0.00
32.40	2.00	0.89	5.00	0.00	0.00	0.00
32.45	2.00	0.89	5.00	0.00	0.00	0.00
32.50	2.00	0.89	5.00	0.00	0.00	0.00
32.55	2.00	0.89	5.00	0.00	0.00	0.00
32.60	2.00	0.89	5.00	0.00	0.00	0.00
32.65	2.00	0.89	5.00	0.00	0.00	0.00
32.70	2.00	0.89	5.00	0.00	0.00	0.00
32.75	2.00	0.89	5.00	0.00	0.00	0.00
32.80	2.00	0.89	5.00	0.00	0.00	0.00
32.85	2.00	0.89	5.00	0.00	0.00	0.00
32.90	2.00	0.89	5.00	0.00	0.00	0.00
32.95	2.00	0.89	5.00	0.00	0.00	0.00
33.00	2.00	0.89	5.00	0.00	0.00	0.00
33.05	2.00	0.89	5.00	0.00	0.00	0.00
33.10	2.00	0.89	5.00	0.00	0.00	0.00
33.15	2.00	0.89	5.00	0.00	0.00	0.00
33.20	2.00	0.89	5.00	0.00	0.00	0.00
33.25	2.00	0.89	5.00	0.00	0.00	0.00
33.30	2.00	0.89	5.00	0.00	0.00	0.00
33.35	2.00	0.89	5.00	0.00	0.00	0.00
33.40	2.00	0.89	5.00	0.00	0.00	0.00
33.45	2.00	0.89	5.00	0.00	0.00	0.00
33.50	2.00	0.89	5.00	0.00	0.00	0.00
33.55	2.00	0.89	5.00	0.00	0.00	0.00
33.60	2.00	0.89	5.00	0.00	0.00	0.00
33.65	2.00	0.89	5.00	0.00	0.00	0.00

33.70	2.00	0.89	5.00	0.00	0.00	0.00
33.75	2.00	0.89	5.00	0.00	0.00	0.00
33.80	2.00	0.89	5.00	0.00	0.00	0.00
33.85	2.00	0.89	5.00	0.00	0.00	0.00
33.90	2.00	0.89	5.00	0.00	0.00	0.00
33.95	2.00	0.89	5.00	0.00	0.00	0.00
34.00	2.00	0.89	5.00	0.00	0.00	0.00
34.05	2.00	0.89	5.00	0.00	0.00	0.00
34.10	2.00	0.89	5.00	0.00	0.00	0.00
34.15	2.00	0.89	5.00	0.00	0.00	0.00
34.20	2.00	0.89	5.00	0.00	0.00	0.00
34.25	2.00	0.88	5.00	0.00	0.00	0.00
34.30	2.00	0.88	5.00	0.00	0.00	0.00
34.35	2.00	0.88	5.00	0.00	0.00	0.00
34.40	2.00	0.88	5.00	0.00	0.00	0.00
34.45	2.00	0.88	5.00	0.00	0.00	0.00
34.50	2.00	0.88	5.00	0.00	0.00	0.00
34.55	2.00	0.88	5.00	0.00	0.00	0.00
34.60	2.00	0.88	5.00	0.00	0.00	0.00
34.65	2.00	0.88	5.00	0.00	0.00	0.00
34.70	2.00	0.88	5.00	0.00	0.00	0.00
34.75	2.00	0.88	5.00	0.00	0.00	0.00
34.80	2.00	0.88	5.00	0.00	0.00	0.00
34.85	2.00	0.88	5.00	0.00	0.00	0.00
34.90	2.00	0.88	5.00	0.00	0.00	0.00
34.95	2.00	0.88	5.00	0.00	0.00	0.00
35.00	2.00	0.88	5.00	0.00	0.00	0.00
35.05	2.00	0.88	5.00	0.00	0.00	0.00
35.10	2.00	0.88	5.00	0.00	0.00	0.00
35.15	2.00	0.88	5.00	0.00	0.00	0.00
35.20	2.00	0.88	5.00	0.00	0.00	0.00
35.25	2.00	0.88	5.00	0.00	0.00	0.00
35.30	2.00	0.88	5.00	0.00	0.00	0.00
35.35	2.00	0.88	5.00	0.00	0.00	0.00
35.40	2.00	0.88	5.00	0.00	0.00	0.00
35.45	2.00	0.88	5.00	0.00	0.00	0.00
35.50	2.00	0.88	5.00	0.00	0.00	0.00
35.55	2.00	0.88	5.00	0.00	0.00	0.00
35.60	2.00	0.88	5.00	0.00	0.00	0.00
35.65	2.00	0.88	5.00	0.00	0.00	0.00
35.70	2.00	0.88	5.00	0.00	0.00	0.00
35.75	2.00	0.88	5.00	0.00	0.00	0.00
35.80	2.00	0.88	5.00	0.00	0.00	0.00
35.85	2.00	0.88	5.00	0.00	0.00	0.00
35.90	2.00	0.88	5.00	0.00	0.00	0.00
35.95	2.00	0.88	5.00	0.00	0.00	0.00
36.00	2.00	0.88	5.00	0.00	0.00	0.00
36.05	2.00	0.88	5.00	0.00	0.00	0.00
36.10	2.00	0.88	5.00	0.00	0.00	0.00
36.15	2.00	0.88	5.00	0.00	0.00	0.00
36.20	2.00	0.88	5.00	0.00	0.00	0.00
36.25	2.00	0.88	5.00	0.00	0.00	0.00
36.30	2.00	0.88	5.00	0.00	0.00	0.00
36.35	2.00	0.88	5.00	0.00	0.00	0.00
36.40	2.00	0.88	5.00	0.00	0.00	0.00
36.45	2.00	0.88	5.00	0.00	0.00	0.00
36.50	2.00	0.88	5.00	0.00	0.00	0.00
36.55	2.00	0.88	5.00	0.00	0.00	0.00
36.60	2.00	0.88	5.00	0.00	0.00	0.00
36.65	2.00	0.88	5.00	0.00	0.00	0.00
36.70	2.00	0.88	5.00	0.00	0.00	0.00
36.75	2.00	0.88	5.00	0.00	0.00	0.00
36.80	2.00	0.88	5.00	0.00	0.00	0.00
36.85	2.00	0.88	5.00	0.00	0.00	0.00
36.90	2.00	0.88	5.00	0.00	0.00	0.00
36.95	2.00	0.88	5.00	0.00	0.00	0.00
37.00	2.00	0.87	5.00	0.00	0.00	0.00

* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft; Settlement = in.

1 atm (atmosphere) = 1 tsf (ton/ft2)
CRRm Cyclic resistance ratio from soils

CSRsf	Cyclic stress ratio induced by a given earthquake (with user request factor of safety)
F.S.	Factor of Safety against liquefaction, F.S.=CRRm/CSRsf
S_sat	Settlement from saturated sands
S_dry	Settlement from Unsaturated Sands
S_all	Total Settlement from Saturated and Unsaturated Sands
NoLiq	No-Liquefy Soils